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ABSTRACT

Nominated by State and territory directors of vocational education, 25 participants attended a conference designed to improve their skills and abilities to (1) define and justify factors to consider in adding, retraining, or deleting vocational education programs; (2) identify and translate manpower information for planning vocational education; (3) assess cost effectiveness of alternative means of delivering vocational education; (4) use a management information system in planning vocational education; (5) do communications needed to make a working plan for vocational education, and (6) staff a State department for planning vocational education. As background for the conference 57 skills important to State vocational education planning staff members had been identified from a theoretical and performance perspective in six areas of competence: Political, economic, cultural, organizational, personal, and inquiry and communication. Validation of importance had been determined after review of the skills by 51 State or territory directors of vocational education and 47 executive directors of State or territory advisory councils for vocational education. Learning strategies selected to deliver conference topics were simulations, readings, formal presentations, discussions, workshop, panel, and self-analysis. Most participants (75%) were very satisfied. Included with the report are prepared conference papers, the questionnaire on skills and knowledge needs, and a list of participants and resource staff. (LAS)

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National Conference for

STATE VOCATIONAL EDUCATION PLANNING STAFFS

Final Report

Project No. MN-V-9
Grant No. G05-75-00044

Written by: George H. Copa and Erwin K. Geigle

Submitted by Project Co-Directors:
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ABSTRACT

The goal of this project was to examine and improve the effectiveness and quality of state vocational education planning staffs as a critical step toward the improvement and expansion of vocational education. Toward this end, 57 skills and knowledges important to state vocational education planning staff members were first identified from a theoretical and performance perspective. The skills and knowledges clustered in six areas of competence: political, economic, cultural, organizational, personal, and inquiry and communications. Validation of importance was determined after review of the skills and knowledges by 51 state or territory directors of vocational education and 47 executive directors of state or territory advisory councils for vocational education. Importance of skills and knowledges provides a basis for identifying the qualifications which are desirable in individuals being hired to staff a state for planning vocational education.

At the same time as the "importance" assessment, the same two groups were asked to judge the skills and knowledges in which there was a "need for training" by state vocational education planning staffs. Level of need for training was used as an index of the "state of the art" in state planning of vocational education; assessment of state of the art is important in developing a focused and relevant in-service education program and research and development agenda to improve the planning process and resulting plans.

Level of need for skills and knowledges was used as a basic criterion in developing a program for a National Conference on State Planning For Vocational Education. Conference topics were high in need for training,

representative of the broad areas of the planning function, able to be effectively handled in a conference mode, and feasible in terms of time and resources available. Specific objectives of the conference were that as a result of participation, the conference participants would improve their skills and ability to: (a) define and justify factors to consider in adding, retraining or deleting vocational education programs, (b) identify and translate manpower information for planning vocational education, (c) assess the cost-effectiveness of alternative means of delivering vocational education, (d) use a management information system in planning vocational education, (e) do communications needed to make a "working" plan for vocational education, and (f) staff a state department for planning vocational education.

Learning strategies were selected to deliver conference topics in a way to actively involve participants, maximize learning within the time available, and include a variety of instructional modes. The strategies used were: simulations, readings, formal presentations by resource persons, question and answer discussions, workshop, panel of experts (debate), and self analysis.

The conference was conducted during a three day period as a pre-conference to the American Vocational Association Convention In Anaheim, California. Twenty-five participants representing twenty-three states were in attendance.

The conference was evaluated in terms of both product and process as viewed by participants. Seventy-five percent of participants responded that they were very satisfied with the overall conference. Participants each formed a plan for continued professional development of their planning capabilities.

TABLE OF CONTENTS

Acknowledgement. ii

Abstract iii

CHAPTER I: A National Conference on State Planning For Vocational Education 1
  Objectives of Project 2
  Anticipated Results 2
  Approach. 4

CHAPTER II: Skills and Knowledge Needed By State Vocational Education Planning Staffs 7
  Identifying Skills and Knowledge. 7
  Assessment Device and Procedure 11
  Results of Assessment 13
  Selection of Conference Topics. 29
  Development of Training Strategies. 30

CHAPTER III: The Conference 35
  Selection of Participants 35
  Arrangements. 36
  Program 37
  Summary 55

CHAPTER IV: Products of Project 57
  Needed Skills and Knowledge for State Planning of Vocational Education. 57
  "State of the Art" in Vocational Education Planning 62
  Conference and Accompanying Learning Strategies 67
  Plans For Continued Professional Development by Conference Participants 67
  Conference Evaluation 77

Bibliography 83

APPENDIX I Assessment Device For Skills and Knowledge Needs in State Planning of Vocational Education 84

APPENDIX II List of Conference Participants 91

APPENDIX III Contents of Conference Notebook 94

APPENDIX IV Conference Program. 96

APPENDIX V Conference Resource Persons and Staff. 100

APPENDIX VI Prepared Conference Papers 102
Observations On The DOL-OE Inter-Agency Agreement For the Development of Occupational Manpower Information by D. W. Drews. 103
Locating Geographically Specific Manpower Information and Educational Program Information Of Use In Planning Vocational Education by Bruce McKinlay 110
Decision Making Based On Follow-Up Information by Melvin E. Johnson. 131
Integrating Information and Assessing Alternatives by Charles Hopkins. 150

APPENDIX VII Selected Simulation Exercise and Background Information. 156

APPENDIX VIII Communications Workshop Problems 168

APPENDIX IX Conference Evaluation Form 172

APPENDIX X Planning Future Conferences. 177

CHAPTER I

A NATIONAL CONFERENCE ON STATE PLANNING FOR VOCATIONAL EDUCATION

Limited resources, the appearance of viable alternatives to expenditures on education, decentralization in decision making, and the stress on accountability have resulted in a recent re-emphasis on planning in education. This trend is made explicit in vocational education by the new federal legislation. In order to deliver the state level planning capacity being requested for vocational education, the planning process itself must be reexamined by planners in view of the many recent changes specifically affecting vocational education. First, vocational education's clientele groups are changing with decreases in elementary and secondary enrollments, increases in student demands for relevance in education, and stress on meeting the educational needs of adults. Second, the administrative organization of vocational is changing with the move to sub-state educational planning regions and increase in secondary and post-secondary area vocational schools or centers. Third, finance of vocational education at the state level is changing to new "added cost" formulas for funding along with federal emphasis on decentralizing funding decisions and responsibilities. Fourth, our cultural values as exemplified by demands for equal rights for women, affirmative action, consumer protection, and provision of equal education opportunity are becoming even more critical variables in planning vocational education.

The planning process for vocational education must be critically reviewed in view of these changes and appropriate education conducted to insure that the process continues to result in plans which will meet the needs of people in our society. The review of the planning process and subsequent training of vocational education planners are critical steps in the developmental stages of building an educational agency's planning capability.

OBJECTIVES OF PROJECT

The goal of the proposed project was to examine and enhance the effectiveness and quality of state vocational education planning staffs as a critical step toward the improvement and expansion of vocational education for its clientele groups. More specifically, the project was to: (a) Identify the skills and knowledges needed by state staff members who are presently assigned responsibility for vocational education planning, (b) address those needs determined to be of highest priority through the conference mode, and (c) design training strategies to further meet the needs identified for such planners.

ANTICIPATED RESULTS

Several tangible products as well as an increase in vocational education planning skills and knowledges were expected to result from the proposed project. First, a list of skills and knowledges needed in planning vocational education were to be identified. This list was to form the basis of the curriculum planned for the conference to be held for state planning staffs. However, since the list was likely to be larger than that which could reasonably be handled in the proposed conference or some might be better served through other than the conference mode, not all of the identified needs would be addressed in the conference. This list of needs also would represent the needs of a much wider group of clients in state planning staffs than those participating in the proposed conference. In this way, the list of needs identified would serve as a basis for a longer range and broader coverage training program for the future beyond the program being proposed.

Second, the program was to result in a definition of the "state of the art" in vocational education planning. Some of the needs identified in terms of skills and knowledge may be readily satisfied through existing instructional activities while others may well require substantial research and development before viable solutions are available to disseminate. Therefore, besides identifying training priorities, the project would result in implications for research and development priorities related to planning vocational education.

Third, through the conference mode, a selected group of needs would be addressed. One participant from each state and territory would be offered the opportunity for in-service training directed at satisfying these needs. Needs addressed in the conference would be those which were given high priority by state directors of vocational education, which could be effectively treated in the conference mode, and for which viable (if only partial) solutions exist. A variety of learning strategies were to be used during the conference including simulation activities, question and answer discussion and resource persons. As a result of the conference, participants would further develop their planning capabilities as one means of improving the quality and effectiveness of state vocational education planning capabilities.

Fourth, each participant in the proposed conference was to develop an individual plan for continued professional development. The plans would identify for each individual their present needs, activities planned to satisfy these needs, and a time schedule for meeting their plans.

Fifth, a final report of the program would be completed and disseminated. The report was to list the planning needs identified in terms of skills and knowledges, generalize across individual plans for continued professional development, make recommendations for criteria to be used in selecting planners at the state level and identify specific training activities which will assist planners in their professional development.

APPROACH

The approach to be used in delivering the proposed project consisted of the following basic steps:

1. Assessment of needed skills and knowledges for state vocational education planning staffs and their priority.
2. Selection of skills and knowledges to be covered at a national training conference for state vocational education planning staffs.
3. Selection and/or development of learning strategies to satisfy skills and knowledge needs to be addressed at the proposed conference.
4. Conduct one national training conference for state vocational education planning staffs.
5. Evaluate, write, and disseminate a final report of the conference as conducted.

Each step will now be discussed more specifically.

Step one, the assessment of priority needs was to be done via the mail using state directors of vocational education and executive directors of state advisory councils for vocational education as the judges. A preliminary list of potential needs was to be developed by reviewing related literature and discussion with selected individuals (to include representatives of state vocational education planning, higher education institutions, regional centers for vocational or occupational education, and agencies outside vocational education such as employment service and regional development agencies). This list was to be sent to state directors of vocational education and executive directors of state advisory councils with directions to include additional needs if they wished and to place a priority on the needs as listed in terms of their own state. Upon return, these lists were to be compiled into one list with a priority rating for each potential training need related to planning vocational education.

Step two, the selection of needs to be addressed in a national training conference for state vocational educational planning staffs was to be accomplished by the project co-directors using input from a committee composed of a small group of state directors with wide geographic distribution. The selected state directors would be sent the list of needs in priority order and asked to select the needs to be addressed at the conference using the following criteria: (a) Is the need of high priority? (b) Can the need be effectively addressed via the conference mode? and (c) Does a viable solution to the need exist (as a prerequisite to teaching the solution)? These lists would be compiled and used by the project staff in selecting the planning needs to be addressed at the conference. Also the co-directors would be constrained in their selection by the additional factors of budget and time schedule.

Step three, the selection and/or development of learning strategies and activities to satisfy the needed skills and knowledge was to be done by the project staff. Emphasis was to be placed on selecting activities which would be effective, efficient in terms of time and dollars, and involve a variety of approaches (e.g., simualtion, question and answer, resource persons). A search was to be made to identify activities which were already developed and could be used "per se". If activities were not available, they were to be developed by the project staff.

Step four, a national training conference for state vocational education planning staffs was to be conducted. Invitations to the conference were to be extended to one individual from each state and territory with the individual to be selected by the state director of vocational education. The conference was to be a pre-session to the American Vocational Association Meeting held at Anaheim, California. The conference was to be three days in length and take place on December 3-5, 1975. Because it was to be offered in conjunction with the AVA meeting, it was planned that participants would pay their own expenses for travel and per diem.[1] This procedure seemed to work very well in a previous year for a pre-session to AVA directed at manpower planning for state vocational education staff personnel.

Step five, evaluation and the writing and dissemination of a final report of the conference, was to be done by the project staff. Evaluation of the conference was to be done by subjective participants' reactions to the conference activities in terms of value and delivery. A conference report was to be written covering the topics identified previously in the "Anticipated Results" section.

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[1] It was assumed that a hotel conference room could be obtained without cost if conference participants stay at the hotel. It was planned that refreshments served at breaks in the conference program would be covered by a registration fee.

CHAPTER II

SKILLS AND KNOWLEDGE NEEDED BY STATE VOCATIONAL EDUCATION PLANNING STAFFS

Since the responsibilities of state vocational education planning staffs are diverse and comprehensive, the problem of identifying the total array of needed state planner skills and knowledges was a challenging objective. For example, one dimension of a state vocational education planner is to interact with a variety of individuals and agencies at various levels (e.g., local, regional, state, federal). This single dimension of a state planner's job responsibilities connotes competencies ranging from interpersonal communication skills to economic and political knowledge for understanding long range socio-economic implications of on-the-spot decisions.

IDENTIFYING SKILLS AND KNOWLEDGE

In order to accomplish the task of identifying skills and knowledges needed by state planning staffs, an organized approach based on a conceptual model was used. The conceptual, but simple, model allowed the assumption that "what exists" is not necessarily the same as "what should be" in terms of the tasks performed by state vocational education planners. This assumption was predicated upon the notion that organizations, departments or individuals do not necessarily behave or operate as they should according to theoretical or ideal criteria. In essence, the conceptual model stated that there was an interface between the theoretical and the performed aspects of the tasks executed by state vocational education planners (Figure 1).

The tasks that state planners perform were primarily identified through: (a) Reviewing the limited research that existed and (b) doing a task analysis of state planner job descriptions. The review of research literature yielded

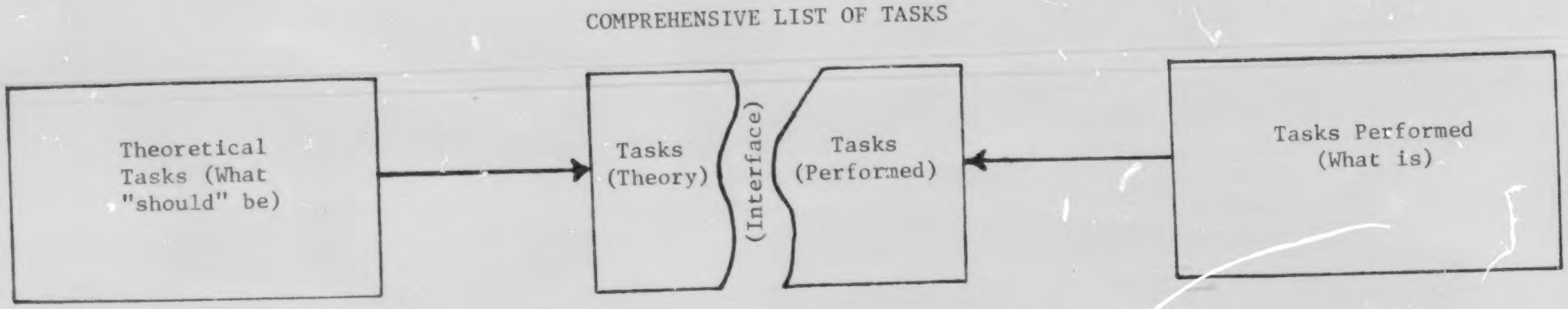
COMPREHENSIVE LIST OF TASKS
Theoretical Tasks (What "should" be)
Tasks (Theory)
(Interface)
Tasks (Performed)
Tasks Performed (What is)

FIGURE 1. CONCEPTUAL MODEL OF STATE PLANNER TASK IDENTIFICATION

four sources which were deemed directly applicable for the identification of state planner competencies.[1] Of the four sources, Dr. Kenny Gray's 1970 Doctoral Thesis was most helpful for identifying specific competencies. The organization and format for stating the competencies was based on a research series publication by the W. E. Upjohn Institute for Employment Research.[2]

Task analysis was performed on job descriptions of state planners from eight states.[3] Although 12 representative states were contacted, only eight states sent their job descriptions of the position of state planner for vocational-technical education. The combined effort of the review of research literature and task analysis of job descriptions yielded 121 "different" tasks that state planners could be and probably are performing in their present positions.

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[1] Copa, George H., Geigle, Erwin K., and Imade, U.O. Factors, Priorities, and Information Needs in Planning Vocational Education: Views of Selected Educational Planners in Minnesota, Minnesota Research Coordinating Unit for Vocational Education (Minneapolis: University of Minnesota, March, 1976).

Gray, Kenny E. "Competencies Needed by Personnel Engaged in Program Planning in State Divisions of Vocational-Technical Education" (unpublished Ph.D. Dissertation, The Ohio State University, 1970).

McCracken, J. David. Information Needs of State Directors of Vocational Education, The Center for Vocational and Technical Education, Research and Development Series No. 83 (Columbus: The Ohio State University, March, 1973).

Morgan, Robert L., Lawrence, John E.S., and Champion, Douglas W. A National Survey of Problems in State Planning for Vocational Education, Dynamic Analysis and Strategic Planning Program Paper No. 2 (Raleigh: Center for Occupational Education, North Carolina State University, 1974).

[2] Fine, Sidney A., Holt, Ann M., and Hutchinson, Maret F. Functional Job Analysis: How to Standardize Task Statements, Methods for Manpower Analysis No. 9 (Washington, D.C.: W.E. Upjohn Institute For Employment Research, October, 1974).

[3] Colorado, Delaware, Minnesota, New Jersey, Oklahoma, Pennsylvania, Tennessee, and Wisconsin.

Viewing the same problem of task identification from a theoretical perspective, state planners could be engaged in additional and/or different tasks than those identified via review of research and task analysis approach. To determine if this perspective had any validity, two dimensions for task identification were utilized: (a) a theoretical training model for educational administration[4] and (b) a model for planning vocational education.[5] A total of 63 competencies or tasks were identified for state planners of vocational-technical education by approaching the problem from a theoretical vantage. No doubt if other theoretical source materials were scrutinized, additional tasks could probably be identified; but, it was determined that the tasks already developed were at least representative of the diverse and comprehensive functions of state planners.

The total number of tasks identified from theory and practice were 184 in 11 different categories. In order to develop a manageable number of tasks and eliminate "duplicate" tasks, several tasks reviews were initiated. After the first review, 135 tasks remained. The next series of task reviews resulted in 119, 105, 90, 82 and finally 57 tasks in six categories. The categories depicted general areas of state planner competence. The categories that resulted were: (a) policitcal, (b) economic, (d) cultural, (d) organizational, (e) personal, and (f) inquiry and communication skills categories. The 57 skills and knowledge in these six categories were used in the assessment of skills and knowledge needed by state vocational education planning staffs. A list of the skills and knowledge are shown in Appendix I.

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[4] Pohland, Paul A., and Blood, Ronald E. "Toward a Multi-Dimensional Model of Leadership-in-Administration Preparation Program," Planning and Changing. IV, No. 3 (Fall, 1973), 144-156.

[5] Copa, George H. "Planning Vocational Education," Minnesota Research Coordinating Unit for Vocational Education (Minneapolis: University of Minnesota, unpublished Manuscript, 1975).

ASSESSMENT DEVICE AND PROCEDURE

The next step was to develop an assessment device or instrument for determining the skills and knowledge needed by state level planners. If the 57 competencies were to be used as the basis for the assessment of needed skills and knowledge of state planners, it was necessary that the competencies were those tasks which are relevant for state vocational education planning staffs. To determine the validity (relevance) of the 57 skills and knowledges, both state directors of vocational education and executive directors of state vocational education advisory committees were asked to rate the importance of each skill and knowledge for state staff personnel responsible for program planning in vocational education to efficiently carry out their job responsibilities. The rating for each task ranged from zero to four (0 = Not Applicable, 1 = Unimportant, 2 = Important, 3 = Very Important, and 4 = Essential). Once the importance of an item had been established, then the item could be rated as to how it relates to the needs of state planners of vocational education programs.

In order to be as efficient as possible, both ratings, "importance" and "need for training", for each skill and knowledge were performed at the same time. Therefore, the assessment instrument containing the 57 skills and knowledges served both as a validation procedure as well as an instrument for assessing the needs of state planners.

To reiterate, the resultant instrument for assessing the needed skills and knowledge of state planners contained the 57 competencies in six categories.

Each competency was rated, first, as to its "importance" for state planners and second, the need for additional inservice assistance or training in each competency for the respective present state program planning staff in vocational education by both state directors of vocational education and executive directors of state advisory councils. The "need for training" rating ranged from zero to four (0 = None, 1 = Low, 2 = Medium, 3 = High, and 4 = Critical). Appendix I contains a sample assessment instrument, complete with instructions.

State directors of vocational education and executive directors of state vocational education advisory councils from the 56 states and U.S. territories were sent: (a) A letter of introduction requesting their help, (b) an assessment instrument, (c) a letter of support from the executive committee of the National Association of State Directors for Vocational Education, and (d) a stamped, self-addressed envelope. After two weeks, those state directors and executive directors who had not returned their completed instruments were sent a follow-up letter asking for their indulgence and to return the completed assessment instrument in the stamped, self-addressed envelope.

The return rate of the instruments was 91% (102 state and executive directors out of a possible 112), although only 87% (98 instruments) were complete enough to be used in the analyses for determining the "importance" of the competencies and specifying the level of "need for training" on each competency. The response rate for state directors was 95% (53 returns) with 91% (51 returns) being complete and used for analyses. The executive directors returned 49 instruments (86%) with 47 returns (84%) being used to establish the importance and need for training for the skills and knowledge for state planning of vocational education programs.

RESULTS OF THE ASSESSMENT

The results of the assessment consist of average "importance" ratings and average "need for training" ratings of skills and knowledge for state planners according to state directors of vocational education and executive directors of state vocational education advisory committees. Table 1 contains the importance ratings while Table 2 identifies the need for training ratings as indicated by both groups. In addition, a statistical test was performed on each item in both Table 1 and 2 to determine any difference between the response patterns of state directors versus executive directors.

The average "importance rating"[6] of each of the 57 competencies as judged separately by the 51 state directors and 47 executive directors are listed in Table 1. Both groups rated all competencies "important" to "essential". Not a single competency received an average rating of less than 2.00 (important) by either group. On the other hand, 20 competencies received an average rating of 3.00 (very important) or above by state directors. The executive directors rated 28 competencies 3.00 or above. Using the criterion rating of 3.00 (very important) or above for the number of competencies receiving that average rating or greater, the two categories considered most important by both groups were the (1) Political and (2) Inquiry and Communication Skills categories.

A chi-square (x^2) test of significance was performed between the average rating patterns (response categories 0,1,2,3, and 4) of the state directors versus the executive directors for each competency.[7] The x^2 test, of course, is not a test of the difference between the two means, but rather a test of how the two groups rated each task in terms of frequency per response categories (patterns) from low to high (0 to 4). In other words, were the proportions of 0's, 1's, 2's, 3's, and 4's as rated by the state directors similar to the proportions as rated by the executive directors? The x^2 test of significance for each of the 57 competencies between the two groups is unrelated to the mean ratings for each task. Therefore, Table 1 contains two distinct sets of information for each task--average importance ratings and results of a statistical test of difference between categorical response proportions.

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[6] As indicated earlier, the items were rated as to importance by the following numbering system: 0 = Not Applicable, 1 = Unimportant, 2 = Important, 3 = Very Important, and 4 = Essential.

The state directors and executive directors differed significantly in terms of the category response proportions for only four competencies (number 3, 6, 23, and 24). Both groups responded proportionately similar to the remaining 53 competencies although the mean ratings per item may not be the same between the two groups. No statistical test of significance was performed between the mean importance rating of the state directors and executive directors. On the four tasks for which the two groups differed significantly, it can be concluded that the state directors of vocational education did not perceive the importance of those tasks in the same manner as did the executive directors.

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[7] Category 0 (Not Applicable) and 1 (Unimportant) were combined into one category for the x^2 test. Not enough tasks received ratings of 0's or 1's to justify separate response analysis categories.

TABLE 1

COMPARISON BETWEEN "IMPORTANCE" RATINGS OF STATE PLANNER COMPETENCIES BY STATE DIRECTORS OF VOCATIONAL EDUCATION AND EXECUTIVE DIRECTORS OF STATE ADVISORY COMMITTEE FOR VOCATIONAL EDUCATION

Tasks	Average Importance Rating		Chi-Square Test of Significance (df = 3)	
	State Directors (N = 51)	Executive Directors (N = 47)	x^2	Probability
POLITICAL CONTEXT				
1. Interpret state and federal laws and procedures pertaining to vocational education.	3.47	3.30	1.43	.69
2. Interpret policies and procedures established by State Boards of Education and Vocational Education.	3.51	3.51	4.22	.23
3. Develop and describe the relationships between social and economic plans of a state and vocational education.	2.86	3.30	12.97	.01***
4. Delineate the political feelings of rural, urban, and ethnic groups and determine their relationship to vocational education.	2.35	2.70	3.10	.37
5. Develop measurable vocational education program goals and objectives.	3.45	3.57	0.93	.81
6. Establish an articulated structure for implementing and conducting effective programs of vocational education (K-Adult) as an integral part of the state's total educational effort.	2.98	3.60	12.35	.01***
7. Develop a system for obtaining and disbursing state and federal aid as it relates to legislative guidelines and community control.	2.94	2.82	2.33	.50
8. Identify, monitor, and support passage of local, state, and federal policies and laws which foster vocational education.	3.02	2.98	2.55	.47
ECONOMIC CONTEXT				
9. Identify, collect, interpret demographic and manpower data for projecting annual and long-range employment needs by occupational category and skill level.	3.69	3.50	2.35	.50

*** Significant at the .01 level.

TABLE 1 (CONT.)

Tasks	Average Importance Rating		Chi-Square Test of Significance (df = 3)	
	State Directors (N = 51)	Executive Directors (N = 47)	x^2	Probability
ECONOMIC CONTEXT (CONTINUED)				
10. Translate annual and long-range employment needs into occupational courses with identified priorities by geographical area.	3.51	3.37	1.98	.57
11. Project the physical, fiscal, and human needs to accommodate vocational education programs.	3.20	3.48	5.11	.16
12. Identify local financial and human resources available for program implementation.	2.78	2.76	0.49	.92
13. Delineate and analyze cost-benefit information regarding vocational education programs.	2.92	2.96	0.20	.97
14. Assess the cost-effectiveness of alternative delivery systems for vocational education (e.g., on-the-job training, institutional training, home-study) and determine the most appropriate programs.	3.14	3.20	2.39	.49
15. Determine the commitment of business and industry to assist in conducting the vocational education program.	2.57	2.93	4.91	.17
16. Determine cost and need for ancillary services, such as teacher education and curriculum services, for implementing a five-year projected program.	2.84	3.00	2.00	.57
17. Identify and determine the relationship between existing public and private vocational instruction programs by geographical area and educational level.	2.45	2.57	1.54	.67
18. Identify public and private resources designated for vocational education, other resources which may be used for vocational education, and constraints within which the funds are to be used.	2.73	2.78	2.28	.51
19. Write proposals for funding projects to assess need for, operate, and evaluate vocational education programs.	2.36	2.54	2.73	.43

TABLE 1 (CONT.)

Tasks	Average Importance Rating: State Directors (N = 51)	Average Importance Rating: Executive Directors (N = 47)	Chi-Square Test of Significance (df = 3): x^2	Chi-Square Test of Significance (df = 3): Probability
ECONOMIC CONTEXT (CONTINUED)				
20. Prepare an alternative, "back-up" resource plan to carry out programs projected over the next five years should original resource plan fail.	2.42	2.35	0.04	.99
21. Develop vocational education programs to influence social and economic development (e.g., type and location of industry).	2.54	2.63	0.74	.86
22. Identify and define emerging occupations.	3.14	3.07	2.72	.43
23. Evaluate trends in program offerings in terms of the degree to which vocational programs, in the public schools and other sectors, are meeting the employment training needs and student enrollment demands.	3.26	3.69	6.98	.07*
24. Determine the optimal resource and program mix for achieving state objectives.	2.90	3.15	6.17	.10*
25. Develop and present to a board of education, an annual and long-range plan for vocational education.	3.27	3.52	5.34	.14
CULTURAL CONTEXT				
26. Evaluate the role of vocational education in relationship to meeting societal needs and individual needs.	2.76	3.16	4.56	.21
27. Synthesize available resources and program objectives, and relate them to student needs (youth and adult), manpower demands, and cultural, social and political values.	3.00	3.20	2.11	.55
28. Identify attitudes of the local population and educational agency toward vocational education for minorities, and special needs groups.	2.35	2.56	1.44	.70

*Significant at the .10 level

TABLE 1 (CONT.)

Tasks	Average Importance Rating		Chi-Square Test of Significance (df = 3)	
	State Directors (N = 51)	Executive Directors (N = 47)	x^2	Probability
CULTURAL CONTEXT (CONTINUED)				
29. Inventory the abilities, aspirations, and needs of present and potential students (youth and adult) as they relate to vocational education.	2.73	2.83	2.05	.56
30. Characterize the population by geographical areas and contrast local areas with state, regional, and national averages.	2.29	2.26	0.68	.88
31. Develop a format for communicating need for vocational education to the public.	2.94	2.89	2.20	.53
32. Translate broad social and economic plans into regular and special vocational programs.	2.80	2.54	2.45	.48
33. Identify new and innovative vocational programs and ways to encourage schools to adopt improvements.	2.78	3.07	1.24	.74
34. Advise on changes needed in existing programs to accomplish priority goals and on the transition for introducing new programs.	3.02	3.04	0.76	.86
35. Identify and address moral dilemmas and value conflicts in planning vocational education (e.g., discrimination, energy consumption, government involvement).	2.25	2.41	0.59	.90
36. Utilize current knowledge in environmental impact as a means of evaluating directions to be taken by vocational education.	2.18	2.28	0.94	.82
37. Determine existing and future social conditions which have implications for the development of vocational education programming.	2.67	2.46	5.65	.13
38. Take into consideration the "image" of vocational education when planning and implementing programs.	2.57	2.40	2.77	.43

TABLE 1 (CONT.)

Tasks	Average Importance Rating		Chi-Square Test of Significance (df = 3)	
	State Directors (N = 51)	Executive Directors (N = 47)	x^2	Probability
ORGANIZATIONAL CONTEXT				
39. Develop a procedure for specifying positions, offices and roles for the administration of program planning and define how these positions, offices, and roles are in keeping with the goals of the entire education department.	2.84	3.07	4.65	.20
40. Organize and direct group of staff members and others engaged in planning for a total program.	3.14	3.28	1.36	.72
41. Identify expectations and needs of each job incumbent in program planning and determine how the organizational context is or is not meeting the expectations and needs.	2.67	2.78	0.75	.86
42. Develop a system for organizational feedback and control to aid in future operation, improvement, and change of the vocational education program planning staff.	3.04	3.15	2.28	.52
43. Develop insight into human frailties and understand human nature as they affect the development and accomplishment of plans.	2.52	2.33	5.72	.13
PERSONAL CONTEXT				
44. Identify his/her own values, needs, skills, abilities, and aspirations and determine the implications for interpersonal communications and effectiveness.	2.56	2.59	1.88	.60
45. Determine opportunities for social, technical, and professional growth for the vocational education program planner.	2.52	2.50	0.10	.99
46. Design a program of self-development based upon self-assessment and assessment by significant others.	2.40	2.41	1.94	.59
INQUIRY AND COMMUNICATION SKILLS				
47. Systematically engage in research required for educational program planning.	2.84	3.02	1.33	.72

TABLE 1 (CONT.)

	Average Importance Rating		Chi-Square Test of Significance (df = 3)	
Tasks	State Directors (N = 51)	Executive Directors (N = 47)	x^2	Probability
INQUIRY AND COMMUNICATION SKILLS (CONTINUED)				
48. Develop the requisite contextual vocabulary to skillfully communicate with other professionals.	2.64	2.61	1.15	.76
49. Use statistical and research procedures and methods to determine the validity of information.	2.76	2.80	1.70	.64
50. Identify measurable criteria for final program selection and evaluation.	3.16	3.30	1.56	.46
51. Determine the most appropriate methods for program evaluation.	3.14	3.22	0.54	.91
52. Develop and utilize a management information system to serve a planning, programming, and budgeting system (e.g., follow-up, program enrollment).	3.39	3.39	3.34	.34
53. Select and disseminate needed materials and information for state and local program planning.	3.06	3.02	2.50	.48
54. Assist local planners, formally and informally, in identifying alternative strategies for accomplishing program goals and objectives.	3.10	3.02	0.12	.99
55. Assimilate bits and pieces of research into broader perspectives and determine the implications for program planning.	2.50	2.80	3.02	.39
56. Clearly express oneself for effective intra- and inter-agency communications.	2.86	3.00	3.79	.29
57. Prepare and present staff papers identifying program and resource priorities and requirements.	2.45	2.74	3.36	.34

The skills and knowledge needed[8] by state vocational education planning staffs as determined by state directors and executive directors are specified in Table 2. In general, at least about a medium need (a rating near 2) was indicated for all tasks as judged by both groups with most items receiving an average rating substantially above 2, greater than a medium need for additional training. Eight tasks (items 5, 6, 9, 10, 14, 23, 51, and 52) received average ratings of 3.00 (high need) or above by state directors and/or executive directors. The two groups differed in terms of average need rating of 3.00 and above on tasks 5, 6, 10, 23, 51, and 52. Considering the state directors separately, their average need ratings of 3.00 and above for competencies 9, 10, 14, and 52 were in the Economic Context (9, 10, and 14) and the Inquiry and Communication Skills Dimension (52). Executive directors indicated an average need rating of 3.00 and above for six tasks (ktems 5, 6, 9, 14, 23, and 51). Of the six tasks, only two were in common with state directors and those being in the Economic Context (items 9 and 10). The executive directors also identified two tasks (5 and 6) with a high need for training rating which were in the Political Context.

To determine any differences between the response patterns for "need of additional training" between state directors as opposed to executive directors, a chi-square test of significance was performed on the 57 tasks in Table 2. The x^2 test revealed significant rating response pattern differences on 11 tasks (numberd 3, 4, 6, 8, 11, 17, 19, 23, 27, 36, and 38). State directors responded significantly different from executive directors on the 11 tasks in terms of the proportion of need ratings for the response levels (0, 1, 2, 3, and 4).

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[8] As indicated earlier, the "need for additional training" ratings were designated by a numbering system as follows: 0 = None, 1 = Low, 2 = Medium, 3 = High, and 4 = Critical.

Task 19 illustrates the point cited earlier that the chi-square test is not a test of significance between two means, but rather a test of categorical proportionality. The two means for need ratings on task 19 by state directors and executive directors are virtually identical, yet the x^2 test is significant at the .06 level of probability. The reason the x^2 significance occurred is because the response patterns differed widely. In this case, one group responded primarily with 0, 1, and 4 need ratings for the task while the other group indicated need ratings of 1, 2, and 3. The response patterns were obviously different between state directors and executive directors resulting in a x^2 large enough to be considered statistically significant.

TABLE 2

COMPARISON BETWEEN "NEED FOR TRAINING" RATINGS FOR STATE PLANNERS BY STATE DIRECTORS OF VOCATIONAL EDUCATION AND EXECUTIVE DIRECTORS OF STATE ADVISORY COMMITTEES FOR VOCATIONAL EDUCATION

	Average Rating of Need for Training		Chi-Square Test of Significance (df = 3)	
Competencies	State Directors (N = 51)	Executive Directors (N = 47)	x^2	Probability
POLITICAL CONTEXT				
1. Interpret state and federal laws and procedures pertaining to vocational education.	2.28	2.13	0.90	.83
2. Interpret policies and procedures established by State Boards of Education and Vocational Education.	2.06	2.13	0.58	.90
3. Develop and describe the relationships between social and economic plans of a state and vocational education.	2.44	2.89	7.53	.06*
4. Delineate the political feelings of rural, urban, and ethnic groups and determine their relationship to vocational education.	2.02	2.56	8.70	.03**
5. Develop measurable vocational education program goals and objectives.	2.71	3.15	4.28	.23
6. Establish an articulated structure for implementing and conducting effective programs of vocational education (K-Adult) as an integral part of the state's total educational effort.	2.54	3.07	7.28	.06*
7. Develop a system for obtaining and disbursing state and federal aid as it relates to legislative guidelines and community control.	2.36	2.38	2.42	.49
8. Identify, monitor, and support passage of local, state and federal policies and laws which foster vocational education.	2.20	2.27	9.75	.02**
ECONOMIC CONTEXT				
9. Identify, collect, interpret demographic and manpower data for projecting annual and long-range employment needs by occupational category and skill level.	3.00	3.04	2.71	.44

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*Significant at the .10 level.
**Significant at the .05 level.

TABLE 2 (CONT.)

	Average Rating of Need for Training		Chi-Square Test of Significance (df = 3)	
Competencies	State Directors (N = 51)	Executive Directors (N = 47)	x^2	Probability
ECONOMIC CONTEXT (CONTINUED)				
10. Translate annual and long-range employment needs into occupational courses with identified priorities by geographical area.	3.10	2.93	3.09	.38
11. Project the physical, fiscal, and human needs to accommodate vocational education programs.	2.70	2.98	6.99	.07*
12. Identify local financial and human resources available for program implementation.	2.16	2.16	0.49	.92
13. Delineate and analyze cost-benefit information regarding vocational education programs.	2.82	2.84	0.85	.84
14. Assess the cost-effectiveness of alternative delivery systems for vocational education (e.g., on-the-job training, institutional training, home-study) and determine the most appropriate programs.	3.00	3.16	1.26	.74
15. Determine the commitment of business and industry to assist in conducting the vocational education program.	2.14	2.56	5.55	.14
16. Determine cost and need for ancillary services, such as teacher education and curriculum services, for implementing a five-year projected program.	2.26	2.40	4.73	.19
17. Identify and determine the relationship between existing *public* and *private* vocational instruction programs by geographical area and educational level.	1.82	2.18	6.20	.10*
18. Identify public and private resources designated for vocational education, other resources which may be used for vocational education, and constraints within which the funds are to be used.	2.25	2.51	2.98	.39
19. Write proposals for funding projects to assess need for, operate, and evaluate vocational education programs.	1.94	1.93	7.41	.06*

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*Significant at the .10 level.

TABLE 2 (CONT.)

	Average Rating of Need for Training		Chi-Square Test of Significance (df = 3)	
Competencies	State Directors (N = 51)	Executive Directors (N = 47)	x^2	Probability
ECONOMIC CONTEXT (CONTINUED)				
20. Prepare an alternative, "back-up" resource plan to carry out programs projected over the next five years should original resource plan fail.	2.02	2.04	1.31	.73
21. Develop vocational education programs to influence social and economic development (e.g., type and location of industry).	2.08	2.44	5.57	.13
22. Identify and define emerging occupations.	2.84	2.76	0.35	.95
23. Evaluate trends in program offerings in terms of the degree to which vocational programs, in the public schools and other sectors, are meeting the employment training needs and student enrollment demands.	2.69	3.34	10.30	.02**
24. Determine the optimal resource and program mix for achieving state objectives.	2.46	2.69	2.66	.45
25. Develop and present to a board of education, an annual and long-range plan for vocational education.	2.32	2.47	2.45	.48
CULTURAL CONTEXT				
26. Evaluate the role of vocational education in relationship to meeting societal needs and individual needs.	2.38	2.73	3.78	.29
27. Synthesize available resources and program objectives, and relate them to student needs (youth and adult), manpower demands, and cultural, social and political values.	2.55	2.80	7.04	.07*
28. Identify attitudes of the local population and educational agency toward vocational education for minorities, and special needs groups.	2.00	2.42	5.91	.12

*Significant at the .10 level.

**Significant at the .05 level.

TABLE 2 (CONT.)

Competencies	Average Rating of Need for Training: State Directors (N = 51)	Average Rating of Need for Training: Executive Directors (N = 47)	Chi-Square Test of Significance (df = 3): x^2	Chi-Square Test of Significance (df = 3): Probability
CULTURAL CONTEXT (CONTINUED)				
29. Inventory the abilities, aspirations, and needs of present and potential students (youth and adult) as they relate to vocational education.	2.26	2.47	4.38	.22
30. Characterize the population by geographical areas and contrast local areas with state, regional, and national averages.	1.84	2.00	2.63	.45
31. Develop a format for communicating need for vocational education to the public.	2.56	2.80	3.06	.38
32. Translate broad social and economic plans into regular and special vocational programs.	2.24	2.38	1.68	.64
33. Identify new and innovative vocational programs and ways to encourage schools to adopt improvements.	2.46	2.76	4.25	.24
34. Advise on changes needed in existing programs to accomplish priority goals and on the transition for introducing new programs.	2.36	2.62	1.82	.61
35. Identify and address moral dilemmas and value conflicts in planning vocational education (e.g., discrimination, energy consumption, government involvement).	2.00	2.20	2.53	.47
36. Utilize current knowledge in environmental impact as a means of evaluating directions to be taken by vocational education.	1.72	2.09	6.81	.08*
37. Determine existing and future social conditions which have implications for the development of vocational education programming.	2.42	2.36	3.15	.37
38. Take into consideration the "image" of vocational education when planning and implementing programs.	1.82	1.70	10.45	.02**

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*Significant at the .10 level.
**Significant at the .05 level.

TABLE 2 (CONT.)

Competencies	Average Rating of Need for Training State Directors (N = 51)	 Executive Directors (N = 47)	Chi-Square Test of Significance (df = 3) x^2	 Probability
ORGANIZATIONAL CONTEXT				
39. Develop a procedure for specifying positions, offices and roles for the administration of program planning and define how these positions, offices, and roles are in keeping with the goals of the entire education department.	2.33	2.53	4.73	.19
40. Organize and direct group of staff members and others engaged in planning for a total program.	2.43	2.55	2.22	.53
41. Identify expectations and needs of each job incumbent in program planning and determine how the organizational context is or is not meeting the expectations and needs.	2.20	2.42	2.11	.55
42. Develop a system for organizational feedback and control to aid in future operation, improvement, and change of the vocational education program planning staff.	2.62	2.69	0.31	.96
43. Develop insight into human frailties and understand human nature as they affect the development and accomplishment of plans.	1.84	1.73	0.41	.94
PERSONAL CONTEXT				
44. Identify his/her own values, needs, skills, abilities, and aspirations and determine the implications for interpersonal communications and effectiveness.	1.82	1.89	1.14	.77
45. Determine opportunities for social, technical, and professional growth for the vocational education program planner.	1.64	2.04	5.96	.11
46. Design a program of self-development based upon self-assessment and assessment by significant others.	1.72	1.91	1.66	.65
INQUIRY AND COMMUNICATION SKILLS				
47. Systematically engage in research required for educational program planning.	2.35	2.56	4.46	.22

TABLE 2 (CONT.)

Competencies	Average Rating of Need for Training		Chi-Square Test of Significance (df = 3)	
	State Directors (N = 51)	Executive Directors (N = 47)	x^2	Probability
INQUIRY AND COMMUNICATION SKILLS (CONTINUED)				
48. Develop the requisite contextual vocabulary to skillfully communicate with other professionals.	1.96	1.89	3.57	.31
49. Use statistical and research procedures and methods to determine the validity of information.	2.46	2.60	2.18	.54
50. Identify measurable criteria for final program selection and evaluation.	2.82	2.84	2.32	.51
51. Determine the most appropriate methods for program evaluation.	2.74	3.00	3.49	.32
52. Develop and utilize a management information system to serve a planning, programming, and budgeting system (e.g., follow-up, program enrollment).	3.08	2.84	3.27	.35
53. Select and disseminate needed materials and information for state and local program planning.	2.40	2.29	1.80	.62
54. Assist local planners, formally and informally, in identifying alternative strategies for accomplishing program goals and objectives.	2.68	2.73	2.93	.40
55. Assimilate bits and pieces of research into broader perspectives and determine the implications for program planning.	2.24	2.31	2.11	.55
56. Clearly express oneself for effective intra- and inter-agency communications.	2.32	2.27	2.63	.45
57. Prepare and present staff papers identifying program and resource priorities and requirements.	1.97	2.20	4.93	.18

SELECTION OF CONFERENCE TOPICS

Using the results of the assessment of skills and knowledge needed by state vocational education staffs as judged by state directors of vocational education and executive directors of state advisory councils for vocational education a list of the highest priority competencies in terms of "need for training" was developed. This list contained 21 competencies for potential address at the conference. Six competencies were selected for the conference using the following criteria:

1. Priority in terms of "need for training".
2. Effectiveness of addressing via conference mode in terms of coverage and impact.
3. Viable content and/or resource person availability.
4. Cost to address competency.
5. Time required for organizing to address competency.
6. Inclusion of variety of topics.

The selected competencies rephrased in terms of conference topics are as follows:

1. Factors to consider in adding, retaining, or dropping vocational education programs.
2. Identifying and translating manpower information for planning vocational education.
3. Assessing the cost-effectiveness of alternative means of delivering vocational education (e.g., private schools vs. public schools, secondary vs. post-secondary or adult level, on-the-job vs. institutional).
4. Using a management information system in planning vocational education.
5. Communications needed to make a "working" plan for vocational education.

6. Staffing a state department for planning vocational education.

The conference program was designed to focus on several aspects of planning vocational education at the state level. The first topic provided a practical context from which to view planning vocational education. The second and third topics dealt in more depth with selected high priority elements of information used in planning vocational education. Topic four brought together the two previous elements plus others and would focus on how to organize the information for maximum utilization. Topic five covered communications needed to develop and implement a plan of vocational education (e.g., communication with students, local schools, legislators, general public). Topic six dealt with organizing a staff to accomplish state planning of vocational education. Several alternative organizational patterns would be addressed.

The selected set of conference topics were sent to four state directors of vocational education representing different geographic areas of the United States for their final review and suggestions for improvement given the selection criteria posed earlier. Reactions indicated the topics were appropriate and relevant for state vocational education planning staffs.

DEVELOPMENT OF TRAINING STRATEGIES

In developing training strategies, emphasis was placed on selecting activities which would be effective, efficient in terms of time and dollars, and involve a variety of approaches (e.g., simulation, question and answer, resource persons). A search was made to identify activities which were already developed and could be used "as is" in addressing the selected conference topics. The topics, selected training strategies, foci, and their corresponding rationale are shown in Table 3.

The simulation activities which were used already existed in fully developed form from the Minnesota Research Coordinating Unit for Vocational Education.[9] Resource persons were selected based on knowledge of the project staff and consultation with other persons on a national level. Specifically, the conference program was designed to (a) use a variety of learning strategies, (b) actively involve participants, (c) use qualified resource persons, (d) give participants something tangible to take home, (e) run on a time schedule, and (f) fit together as a "whole". Resource persons were selected to be individuals who were both "thinkers" and "doers" in that they had experience in various aspects of planning vocational education programs.

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[9] Copa, George H., Geigle, Erwin K., and Irvin, Donald E. Jr. Critical Issues in Planning Vocational Education: A Series of Simulation Exercises. Minnesota Research Coordinating Unit for Vocational Education (Minneapolis: University of Minnesota, April, 1976).

TABLE 3

CONFERENCE TOPICS, TRAINING STRATEGIES, FOCUS, AND RATIONALE

TOPIC	STRATEGY	FOCUS	RATIONALE
1. Factors to Consider in Adding, Retaining or Deleting Vocational Education Programs.	Simulation and resource person.	Issues in planning vocational education (i.e., for what occupation does vocational education provide training; labor market needs, people needs and vocational education) and a framework for studying the planning of vocational education.	Since this was the first topic to be addressed, priority was placed on getting participants actively involved and aware of the issues in planning vocational education. Simulation activities which were already developed were used for this purpose. To provide continuity to the conference program from the participants' perspective and a way for them to organize what was being learned, a framework for thinking about planning vocational education was needed; a resource person was selected to propose one such framework.
2. Identifying and Translating Manpower Information for Planning Vocational Education	Resource persons, slide series, demonstration, and discussion.	Federal perspective of information available and how it should be used. Example of use of information at the state level. Assessment of future activities likely to facilitate this process.	A description of the strategy being used at the federal level and how it is intended to be, could best be done by a knowledgeable person from the U.S. Department of Labor. The slide series was already developed and describes the way the federal government is viewing the process of describing manpower demand. The state level application provided a concrete example of how the information could be used in planning vocational education. A resource person with experience in using the information could provide an explanation of its advantages and limitations. A question and answer discussion about future

TABLE 3 (cont.)

TOPIC	STRATEGY	FOCUS	RATIONALE
			interagency cooperation between education and labor provided insight about likely changes and gave participants a chance to provide input on the direction of such cooperation.
3. Assessing the Cost-Effectiveness of Alternative Means of Delivering Vocational Education.	Simulation, demonstration, on-line computer interaction, resource person and selected reading materials.	Issues affecting cost and effectiveness (e.g., public vs. private vocational schools; secondary vs. post-secondary vs. adult level programs; geographic location of programs) and describing and communicating information about alternative means of securing vocational education.	Simulation was again used to enhance participant involvement and highlight the issues in assessing the cost and effectiveness of vocational program. A conference reading was selected to provide technical background in cost analysis of vocational education programs. A resource person was selected to demonstrate how information could be collected and communicated. On-line computer interaction was used to give participants a "hands-on" experience in assessing alternative means of securing vocational education.
4. Using a Management Information Systems in Planning Vocational Education.	Self analysis, resource person, demonstration.	Demonstration of procedure to identify information needs, application of using management information in planning vocational education.	In order to involve participants and demonstrate a procedure for identifying information needed for planning vocational education, an analysis was made of information requests by participants during the previous simulation sessions. Resource persons were selected to describe the school use of information from a management information system in planning vocational education. The applications were selected to demonstrate use of information to make a decision and to create alternatives for consideration.

TABLE 3 (cont.)

TOPIC	STRATEGY	FOCUS	RATIONALE
5. Communications Needed to Make A "Working" Plan for Vocational Education.	"Buzz" session, resource person, problem solving in small groups.	Who needs to know, what is to be communicated and how it can be done effectively.	A resource person with experience in communications and vocational education was used to quickly cover the "art" of communications. A workshop session was designed to give practice at developing a communication strategy for selected problems in planning vocational education.
6. Staffing A State Department For Planning Vocational Education	Report of a study, panel of experts, self assessment and planning.	Tasks required in planning vocational education, alternative organizational patterns to get tasks accomplished and further training needs of conference participants.	Report of the judgments of state directors of vocational education and executive directors of state advisory committees on "importance" of tasks in planning vocational education represented input from "significant" persons. Description of alternative patterns of organizations from several states represented "state of art", amount of commitment to planning and alternative approaches. Discussion of difference in organizational pattern and supporting reasons provided background for potential adaption to home state. Assessment of future training needs provided input for planning the next step in the professional development of state vocational education planning staffs.

CHAPTER III

THE CONFERENCE

The conference was held as a pre-session to the American Vocational Association Convention at Anaheim, California on December 3-5, 1975. Specific objectives of the conference were that as a result of active participation, participants would improve their skills and ability to:

1. Define and justify factors to consider in adding, retaining or deleting vocational education programs.
2. Identify and translate manpower information for planning vocational education.
3. Assess the cost-effectiveness of alternative means of delivering vocational education.
4. Use a management information system in planning vocational education.
5. Do communications needed to make a "working" plan for vocational education.
6. Staff a state department for planning vocational education.

SELECTION OF PARTICIPANTS

Participants for the conference were nominated by state and territory directors of vocational education. The objective was to have one conference participant from each state and territory. Each state and territory director was asked to nominate a participant and an alternate. A total of 33 states nominated at least one person. Several other states responded with a letter indicating that they were very interested in the conference but were unable to send a participant because of limited financial resources or restricted out-of-state travel for state department of education staff. Some of these states nominated persons from local education agencies in the state or from the state advisory council for vocational education.

The first person nominated in each state and territory by the state or territory director of vocational education was contacted to determine if they would attend the conference. When the first person nominated could not attend, the alternate was contacted. Contacted persons were asked to confirm their interest by paying a small registration fee. After completion of the process, a total of 28 states and territories were represented by registered participants. Since fewer than all the states were represented and some states wished to send more than one participant, exceptions were made to allow extra participants from some states at the request of the states involved. The resulting number of registered participants was 27. Of these registered participants, a total of 25 attended the conference; these participants represented 23 states and territories. All participants stayed for the full three days of the conference. A list of participants can be found in Appendix II.

ARRANGEMENTS

The conference was held in the Anaheim Convention Center in Anaheim, California. The meeting room was large and flexible enough to set up both large and small groups for conference activities.

A conference notebook was prepared for each participant. The notebook contained sections on: (a) conference program, (b) participants and resource persons, (c) background reading and information, (d) simulations, (e) conference papers, and (f) notes. A complete index of the contents of the conference notebook is provided in Appendix III. The small registration fee charged to participants was used to supply these notebooks and reimburse costs of refreshments during the conference day.

Table markers were prepared for each conference participant to facilitate interchange among participants during the program. Special arrangements were made to secure an on-line computer terminal to facilitate one of the conference presentations.

PROGRAM

The conference program was designed to teach topics which were to be addressed and use the selected learning strategies. A time schedule was proposed and later enforced. A copy of the conference program is shown in Appendix IV. A complete identification of conference resource persons and staff is presented in Appendix V.

Conference Papers

Nine conference papers were presented by resource persons and conference staff members. Resource persons were encouraged to prepare a formal paper but the requirement was not mandatory in view of limited funds available to reimburse time in developing papers. An abstract of each of the nine conference paper presentations follows. Where formal conference papers were prepared, a complete copy is provided in Appendix VI. In some cases, abstracts were developed from notes taken by conference staff members during the presentations and therefore, some inaccuracies in interpretation and coverage may exist.

PRESENTATION TITLE: FROM FACTORS TO A MODEL FOR PLANNING VOCATIONAL EDUCATION

PRESENTER: George Copa, Associate Professor, Department of Vocational and Technical Education, University of Minnesota, Minneapolis, Minnesota.

ABSTRACT OF PRESENTATION:

I. WHY PLAN -- Offset uncertainty, keep focus on goals, economy of operation, facilitate control.

II. REQUIREMENTS TO PLAN -- Knowledge of means/ends relationship, alternatives, objectives, present situation.

III. OUTPUT OF PLANNING -- Outline of future, tells what will take place and who will make it happen. Plan is linked between desired objectives and their realization.

IV. WHAT IS A MODEL -- Replica of reality, objective is to make it simpler than reality and yet use it to explain and predict, assumes a small number of variables can be used to give a "good" explanation, need to pick right variables and relationships, detail to include depends on purpose.

V. STAGES IN CONSTRUCTING MODEL -- Defining context, building model, validating model.

VI. MODEL OF VOCATIONAL EDUCATION -- At this point a set of salient characteristics of vocational education were proposed and, using these characteristics, a model of vocational education was built. The model was one of input/output format with vocational education viewed as a process. The ways in which the model was tested were explained; these were through internal validity, simulation, and correspondence with past research. Finally, the model was used to identify some key questions in planning vocational education.

PRESENTATION TITLE: IDENTIFYING AND TRANSLATING MANPOWER INFORMATION FOR PLANNING VOCATIONAL EDUCATION - ONE STATE'S PERSPECTIVE

PRESENTER: R. D. Balthaser, Assistant Director for Research and Evaluation, Vocational Education, Ohio State Department of Education, Columbus, Ohio.

ABSTRACT OF PRESENTATION:

I. NEEDS ASSESSMENT - There is a philosophical conflict with higher education; there has to be a commitment to student program instead of system; standards are so diverse nationwide as to be problematic; and the future of labor market forecasting is still ethereal.

II. SKILL SURVEYS - Used in the '50's and 60's in cooperation with BES; also supplemental surveys were done by SDE/LEA teams. Yet, in all cases, the economic forecasting by employers refuted any historical study and is still an "art form" rather than a finite program.

III. STATE PLAN - USOE requirements for forecasting have shown us to be a diverse group and very subjective. A major concern in this document is the "other sector" of supply. The "claimed" occupations of the unemployed as compared to the trained workers makes this segment very elusive.

IV. BES (our friends) - Over the years, has coincided with our goals and programs. We started out with OWT, graduated to MDTA, used their skill surveys, and had their assistance in co-op placement.

V. I-O MATRIX - TRENDS!!! - Consequently, the move by USDL to supply computer analysis for each state was welcome. In addition, each state can obtain the SMSA if requested as well as the state totals. The formula is so complicated and has so many input items that it would be wasted $$ to become a purist and do your own thing.

IV. VOED USAGE ON A DISAGGREGATION BASIS - The process is really very simple in translation, although debatable. Cash costs for computer time and input servicing amounts to $2-3,000 per year. In general:

a. The BES takes the I-O printout for each year and transfers it to the VoEd taxonomies while we monitor assignment decisions.
b. The SDE then takes the information, adjusts for Agriculture and any other items that seem pertinent. Entering the information is by simple keypunch system.
c. The State printout (control) is used in the annual State Plan, Table 1.
d. The 1970 Census report, by occupations, for each county is then disaggregated by percentages. In other words, hand calculations

ABSTRACT OF PRESENTATION: (Cont.)

made assigning the county's share of state employment in each of the taxonomies. Since the census is based on home address, not job, the daily commuting mobility is automatically covered.

e. Where our districts are not county segments, an assumption is made that the total student enrollment "mirrors" the parent population employment, and thus the share of the job market. Hand calculations were made in each case, accumulating the VEPD's share when segments of each county were involved.

VII. OUTPUT - follows the standard employed/first-year demand/fifth-year demand/rate of growth pattern; listed by each VEPD; listed for each of the taxonomies used; and delivered to the districts.

VIII. USE - The VoEd standard, EDB-463-04, calls for such information to operate and maintain each vocational program. The annual need of 15 or more persons indicates needed programming. Other assumptions move in to explain that maybe VoEd can only produce a part of the output, so the base figure moves up as a rule of thumb to 20 or more persons needed per year to justify a program.

a. If a district wants to start a program, this demand table is checked. If construction funding is requested, the table is checked.

b. If a district does not agree that the information is correct (and it may well be different since the table is based on 1970 information), then the district has the right to conduct its own local survey to determine whether they can truly support such a program. (Validation was made in one district as acceptable; in another, out of 30 programs proposed, 8 were challenged, and only 1 program study generated information that refuted the I-O approach.)

c. Although still expanding, when Ohio reaches its goal of 40% of all high school graduates trained in VoEd programs, then annual evaluation will be made for re-arranging resources. The demand information will be utilized if the follow-up study does not show minimum placement. If the demand is weak, then it is obvious that the placement problem is real and the program should be eliminated and those occupations folded into a diversified cooperative approach. Re-arranging of resources could then be accomplished.

IX. FURTHER ANALYSIS - The Ohio Advisory Council for Vocational Education was not sure of this process and called for a study. The study had no concrete suggestions by their own admission. It is a new field, and the state of the art is not firm.

X. LEAP - The Local Education Agency Planning system was next. The use of demand information is a part of this MIS system. Annually, each LEA received the demand along with an up-dating process form by taxonomy. This report then flows into the State Plan generation each year. 621 LEA's are organized into 104 VEPD's in Ohio.

ABSTRACT OF PRESENTATION: (Cont.)

XI. SIDE NOTE - We have found extensive use by CETA and other regional planning groups of the demand printout. We feel that this marriage of VoEd, BES, and CETA is only a healthy beginning. We approve.

PRESENTATION TITLE: IDENTIFYING AND TRANSLATING MANPOWER INFORMATION FOR PLANNING VOCATIONAL EDUCATION -- A FEDERAL PERSPECTIVE

PRESENTER: Richard Demsey, Coordinator, Tomorrows Manpower Needs Studies, Bureau of Labor Statistics, U.S. Department of Labor, Washington, D.C.

ABSTRACT OF PRESENTATION:

I. HISTORY OF EMPLOYMENT STATISTICS -- Review of programs, products and problems. Brief history of programs was: (1) 1940-50, National Employment Projects, (2) 1950-1968, Area Skill Surveys, (3) 1969-72 Tomorrows Manpower Needs, (4) 1973-75, Interim Manpower Projections Program, and (5) 1975-present, State and Area Projections Program.

II. THIS YEAR'S OUTPUT -- Employment demand projections for all areas with a population over 50,000 for 400 occupations; move occupational base for projections from 1970 to 1974; projection of employment demand to 1985; estimation of replacement rates by occupations.

III. OBJECTIVE OF BUREAU OF LABOR STATISTICS RELATIVE TO STATE AND AREA EMPLOYMENT PROJECTIONS -- Provide states with data base, statistical tools and technical assistance.

IV. MATRIX APPROACH TO PROJECTIONS -- Slide series developed by John Van Zant, was used to describe industry/occupation matrix format and interpretation.

V. LIMITATIONS OF APPROACH -- Based on certain assumptions; based on occupation and industry as reported in Census; not all geographic areas can be disaggregated (only states and small metropolitian statistical areas); not short run information; not specifically organized for vocational education use; assumes standard working life for estimating replacements; does not provide information on occupational supply.

VI. SUMMARY -- Data not perfect but getting better. Need to better understand information needs for planning vocational education. A continuous dialog between vocational education and Bureau of Labor Statistics and Manpower Administration will help improve data.

PRESENTATION TITLE: OBSERVATIONS ON THE DOL-OE INTER-AGENCY AGREEMENT FOR THE DEVELOPMENT OF OCCUPATIONAL MANPOWER INFORMATION[a]

PRESENTER: D. W. Drewes, Associate Director, Center for Occupational Education, North Carolina State University, Raleigh, North Carolina.

ABSTRACT OF PRESENTATION:

I. PURPOSE OF AGREEMENT -- On August 22, 1975, the Manpower Administration and Bureau of Labor Statistics of the U.S. Department of Labor and the U.S. Office of Education agreed to (1) work toward development of an occupational manpower information system which would satisfy the needs of the three agencies, (2) coordinate research and development in the area of occupational manpower information so as to avoid duplication of effort, (3) work toward the development of improved information and national, state and local level manpower needs, (4) plan and develop systematic approach for obtaining, assessing and delivering information on manpower demand and supply, and (5) raise the understanding of users and developers at state and local levels.

II. IMPLICATIONS -- Need for standardization of concepts, definitions and methods to insure comparability of manpower demand and supply information across state and local levels and the field testing of the system with cooperative efforts of labor and vocational education at national, state and local level.

III. LIKELY BENEFITS -- Savings of resources by avoiding duplication in development by each state; state resources could be used to meet unique requirements rather than basic development costs; comparability of data across local and state areas; development of training packages to raise level of understanding and use of occupational data. The information could also facilitate individual career decision making as an aid in vocational guidance and counseling.

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[a] A complete copy of this paper is provided in Appendix VI.

PRESENTATION TITLE: LOCATING GEOGRAPHICALLY SPECIFIC MANPOWER INFORMATION AND EDUCATIONAL PROGRAM INFORMATION OF USE IN PLANNING VOCATIONAL EDUCATION[a]

PRESENTER: Bruce McKinlay, Director, Oregon Career Information System, University of Oregon, Eugene, Oregon.

ABSTRACT OF PRESENTATION:

I. CRUCIAL ELEMENTS OF DECISIONS -- Locating information and putting it to use.

II. MAJOR USES OF MANPOWER INFORMATION -- Program planning and career information. The two are different and yet there are compelling reasons to view them as complementary. The planner is usually more sophisticated in use of data. Career information influences demand for education. Consumers want needed programs and planners want to deliver needed programs.

III. OREGON CAREER INFORMATION SYSTEM -- Functions are to obtain and synthesize occupational and education data, to manage attractive and efficient delivery systems and to help school and agency staff integrate the resulting information into instructional and counseling programs.

IV. SOURCES OF LOCAL INFORMATION -- Sources are: (1) Data programs (e.g., Census, Occupational Employment Statistics, Area Wage Surveys), (2) operations data which are by-product of operating job placement, training, income maintenance or licensing programs (e.g., Job Bank Openings, college placement service reports), and (3) informed sources which are usually individuals (e.g., managers of professional registeries or placement services, principal employers).

V. ISSUES IN COLLECTING DATA -- Must consider trade-offs between occupational detail, topics of information, precision, currency, and localization.

IV. INVENTORY OF EDUCATIONAL PROGRAMS -- Important component of career information system for program planning. Must have conceptual framework for classifying, definition of which programs are to be included, group programs by content and not title, and review by informal but knowledgeable sources. Maintenance is as important as building the file in the first place.

VII. MANPOWER INFORMATION CLEARINGHOUSE -- Results with experience of providing manpower information for program planners showed: (1) requests on a variety of topics, not just outlook, (2) a need to improvise and

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[a] A complete copy of this paper is provided in Appendix VI.

ABSTRACT OF PRESENTATION: (Cont.)

explain findings, not just to compile data and (3) the relevance of career information for program planning. Steps in being of assistance to planners were: (1) Clarify the request, (2) research the data, (3) prepare a response, and (4) review the response with the client.

PRESENTATION TITLE: DECISION MAKING BASED ON FOLLOW-UP INFORMATION[a]

PRESENTER: Melvin E. Johnson, Director, Program Planning and Development Section, Division of Vocational-Technical Education, Minnesota State Department of Education, St. Paul, Minnesota.

ABSTRACT OF PRESENTATION:

I. MINNESOTA POST-SECONDARY VOCATIONAL FOLLOW-UP SYSTEM -- A systematic collection of data to provide consistent information year after year, both for program planning and development and also to provide for accountability at all levels, including classrooms, school and state department for feedback and program improvement.

II. TYPES OF DATA INCLUDED -- Biographical information at enrollment, termination information upon transferring programs or leaving school; follow-up information from graduates one-year after leaving school and follow-up information from employers of graduates one-year after leaving school.

III. ADVANTAGES OF CENTRALIZED FOLLOW-UP -- Data collected consistently so comparisons can be made, objectivity of outside reporting agency, and high response rate (80% +).

IV. DECISIONS FOR WHICH INFORMATION IS USED -- Key questions are: (1) What programs should be offered and (2) what programs are effective.

V. REASONS FOR PROGRAM NOT BEING EFFECTIVE -- (1) There is no need for program, (2) program does not match occupational requirements, (3) persons enrolled either cannot or do not want to perform the skills acquired, or (4) the course content or presentation is ineffective or inadequate. Follow-up data need to provide indicators of effectiveness and enough detail to suggest directions for improvement.

VI. DEVELOPMENT OF DECISION GUIDELINES -- Established guidelines in cooperation with post-secondary institutes and state department of education. Guidelines are in form of fixed standards (e.g., at least 51 percent of the graduates must be in closely related or broadly related jobs during the first year as well as one year later) or within a fixed range of the state average (e.g., the percentage of dropouts should not exceed the state average by more than 20 percent). Purpose of guidelines is to trigger attention to potential problems.

VII. USERS OF INFORMATION -- Student, teacher, counselor, director of school, state department of education, state board of education, legislature, communities.

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[a] A complete copy of this paper is provided in Appendix VI.

ABSTRACT OF PRESENTATION: (Cont.)

VIII. SUMMARY -- Follow-up information used for planning, development and improvement; for recruiting; for support and direction; and for documenting funding requests. Key concern is accountability.

PRESENTATION TITLE: INTEGRATING INFORMATION AND ASSESSING ALTERNATIVES[a]

PRESENTER: Charles Hopkins, Coordinator of Planning, Research, Planning and Evaluation, Oklahoma State Department of Vocational and Technical Education, Stillwater, Oklahoma.

ABSTRACT OF PRESENTATION:

I. INFORMATION OVERLOAD -- Planners in vocational education can face the dilemma of too much information in making decisions. Need to know what decisions are to be made, if the decision is going to be viewed rationally, and what are the expected outcomes of the decision.

II. ORGANIZATION OF DATA -- Planner needs to work from decision down to specific data elements of use. Data elements must be consistent in format and allow aggregation and cross classification. Constraints on decisions are an important part of the data required.

III. LINEAR PROGRAMMING -- A process that allows the decision-maker to analyze or simulate large volumes of data while imposing several constraints in analysis.

IV. POSSIBLE ALTERNATIVE OBJECTIVES IN PLANNING VOCATIONAL EDUCATION -- Objectives which have been investigated in Oklahoma include: (1) Maximizing job placement, (3) maximizing student interest, (4) minimizing program costs, and (5) maximizing social benefits.

V. INFORMATION WHICH HAD TO BE INTEGRATED -- The data used consisted of: (1) Budget development for all program alternatives, (2) student supply available at the secondary, post-secondary, and adult level, (3) stratification of supply according to their aptitude and ability, (4) entry-level wages for each occupation, (5) recommended program training capacity, (6) number of students available for placement at all levels, (7) occupational demand, (8) taxes paid by the average wage earner trained, (9) welfare reduction as a result of employing a trained person, (10) capital available for training from local, state and federal sources, and (11) teachers available from teacher training institutions.

VI. PRESENTING ALTERNATIVES TO DECISION MAKERS -- Make a tentative analysis of the data, the alternatives available, the weakness of the data, and the documented source. Point out the impact that decisions may have on the existing organization.

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[a] A complete copy of this paper is provided in Appendix VI.

PRESENTATION TITLE: TASKS TO BE DONE IN STATE PLANNING FOR VOCATIONAL EDUCATION

PRESENTER: Erwin K. Geigle, Research Fellow, Program Planning and Staff Development Projects, Minnesota Research Coordinating Unit for Vocational Education, University of Minnesota, Minneapolis, Minnesota.

ABSTRACT OF PRESENTATION:

I. OBJECTIVE -- Identify the skills and knowledge needed by State Vocational Education Planning Staffs to effectively execute their job responsibilities.

II. PROCESS OF TASK IDENTIFICATION: AN OVERVIEW -- "What is" and What should be" were construed to constitute a comprehensive and sufficiently diverse base for identifying tasks to be done in state planning for vocational education. A total of 184 tasks in 11 different categories resulted from this initial effort. By eliminating closely related tasks and specifying other tasks more comprehensively, 57 tasks in 6 categories were finally used in the task validation procedure.

III. WHAT IS - TASK ANALYSIS AND EMPIRICAL RESEARCH -- Job description of State Program Planners for Vocational Education were analyzed from eight different states. Additionally, four documents which were deemed as being relevant for task identification were reviewed. Approximately 121 "different" tasks were identified by doing a task analysis of job descriptions and synthesizing the corresponding research literature.

IV. WHAT SHOULD BE - THEORETICAL TRAINING MODEL AND PROPOSED MODEL FOR PLANNING VOCATIONAL EDUCATION -- By utilizing a model for educational administration preparation program and another model for planning vocational education, 63 tasks or competencies "emerged" as being relevant for state planners.

V. TASKS IDENTIFIED -- Since 184 tasks were too great a number to be validated, several task reviews were initiated resulting in 57 tasks in 6 different categories (political, economic, cultural, organizational, personal, and inquiry and communicational dimensions).

VI. TASK VALIDATION -- The 57 tasks were validated by state directors of vocational education and executive directors of state advisory councils for vocational education.

PRESENTATION TITLE: COMMUNICATIONS NEEDED TO MAKE A "WORKING" PLAN FOR VOCATIONAL EDUCATION -- WHO, WHAT, HOW

PRESENTER: Warren Gahlon, Public Affairs Consultant, White Bear Lake, Minnesota.

ABSTRACT OF PRESENTATION:

I. EXAMINATION OF COMMUNICATIONS OBJECTIVE -- Is the purpose to communicate an action in support of a plan or to react in defense of a plan?

II. IDENTIFICATION OF PUBLICS TO BE REACHED -- Potential publics are: (1) Business, industrial, professional, (2) labor, (3) government officials, (4) perspective students, (5) parents of perspective students, (6) educators in non-vocational areas, (7) department staffs and (8) general public.

III. TECHNIQUES -- Techniques include mass media and special techniques (e.g., alumni, career days, articles in specialized publications, direct mail). Problem is matching techniques and public in view of purpose of communication.

IV. IMPLICATIONS FOR ORGANIZATION -- State staff should have a communications section with appropriate resources and expectations.

Conference Simulation Sessions

Five different simulations exercises were used during the conference; at times two or more different exercises were used simultaneously by having separate groups of the participants working on different exercises. The exercises used were taken from a series developed by the Minnesota Research Coordinating Unit for Vocational Education and focused on critical issues in planning vocational education.[1] The simulation materials were originally developed and used to identify the factors, priorities and information needs in planning vocational education in Minnesota.[2]

The general format for simulation sessions was as follows. Individuals were assigned simulated roles which were typical of those involved in planning vocational education in a state. After reading a "background information" section, participants were divided into groups of about ten each and asked to address selected exercises, first individually and then as a group. During independent work, participants developed a position regarding the issue(s) described in the exercise -- a format for recording the position and supporting rationale was provided with each exercise. If supporting information was needed by participants in developing their position, participants were supplied the requested information as asked for on a special form entitled the "Information Request Form". Following independent work, the participants, playing their simulated roles, met to discuss the issue(s). Factors and priorities became evident through both the individual position papers and group interaction.

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[1] Copa, G. H., Geigle, E. K., and Irvin, D. E. Critical Issues in Planning Vocational Education: A Series of Simulation Exercises, Minnesota Research Coordinating Unit for Vocational Education (Minneapolis: University of Minnesota, April, 1976).

[2] Copa, G. H., Geigle, E. K., and Imade, U. O. Factors, Priorities, and Information Needs in Planning Vocational Education: Views of Selected Educational Planners in Minnesota, Minnesota Research Coordinating Unit for Vocational Education (Minneapolis: University of Minnesota, March, 1976).

The planning issues dealt with in the simulation sessions were as follows:

1. For What Occupations Does Vocational Education Provide Training?
2. Labor Market Needs, People Needs and Vocational Education?
3. Who Should Provide Training For A Particular Occupation (Public vs. Private)?
4. Where Should Vocational Education Be Geographically Located?
5. At What Level Of Vocational Education Should The Program Be Offered?

A copy of the "Background Information" and a selected simulation exercise is provided in Appendix VII.

Conference Reading and Information

Conference readings and information consisted of materials of use to participants in efficiently dealing with selected conference topics. These materials were as follows:

1. Cost Effectiveness of Alternative Learning Technologies in Industrial Training--A Study of In-Plant Training and Vocational Schools.[3] This reading was

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[3] Reproduced from Zymelman, M. Cost Effectiveness of Alternative Learning Technologies in Industrial Training--A Study of In-Plant Training and Vocational Schools, International Bank for Reconstruction and Development, Bank Staff Working Paper 169 (Washington, D.C.: International Development Association, December, 1973).

reprinted from its original source with the author's permission. It focused on the technical aspects of assessing the cost and effective of vocational education.

2. An analysis of Ideas and Efforts: Review of Planning in Vocational Education.[4] This information was a bibliography of past literature relating to vocational education planning.

3. Importance and Need For Training Ratings of Skills and Knowledge Needed by State Vocational Education Planning Staffs. This information contained the results of the survey of state directors of vocational education and executive directors of state advisory committees on the skills and knowledge important for planning vocational education and for which a need for training exists by state vocational education planning staffs. These same results were presented earlier in this report.

4. A proposed planning Model for Vocational Education and Strategy for Planning Vocational Education.[5] These materials were used by the conference staff in providing an illustration of a model of vocational education and its in planning. The model was used to provide a rationale and framework within which to view and organize conference learnings. The proposed strategy was used to summarize the results of conference presentation and discussions.

Conference Workshop Session

A workshop session was used in the conference on the topic of communications needed in making a working plan for vocational education. The session was used to give participants an opportunity to apply the knowledge presented in a conference paper to a simulated communications problem in planning vocational education. Copies of the three problems used and the assignments given to conference participants are provided in Appendix VIII. In the workshop session, the participants were subdivided into three groups and each dealt with a separate problem. Following these small group sessions, each group reported its communications plan to the full conference and discussion ensued.

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[4] Taken from Copa, G. H., Imade, U. O., and Geigle E. K. "An Analysis of Ideas and Efforts in Planning Vocational Education, "Minnesota Research Coordinating Unit for Vocational Education, (Minneapolis: University of Minnesota, unpublished manuscript, 1976).

[5] These were taken from Copa, G. H. "Planning Vocational Education," Minnesota Research Coordinating Unit for Vocational Education (Minneapolis: University of Minnesota, unpublished manuscript, 1975).

Conference Panel Discussion Session

The purpose of the panel discussion was to provide conference participants with a description of alternative modes of organizing a state staff for planning vocational education. This format also allowed probing of the rationale and context for various organizational patterns and contrasting them in terms of advantages and disadvantages. The conference participants from Oklahoma (Charles Hopkins), Minnesota (Melvin Johnson), and California (John Davis) were the panel members. Discussion focused on broad functions which needed to be performed (e.g., research, budgeting, accounting, local educational agency assistance, information communications, political analysis), how these functions might be combined into staff positions, qualifications for staff members, and relationship of planners to the rest of the vocational-technical education section (e.g., separate planning sub-section vs. integration of planners with program operations supervisors).

Conference Evaluation Session

Two of the products of this project were to be a conference evaluation and for participants to form individual plans for continued professional development. The conference evaluation was focused on both processes used and products of the conference from the perspective of the participants. Efforts were made to determine how training programs of this kind could be improved in the future. A copy of the evaluation form is provided in Appendix IX.

Plans for continued professional development were obtained by first having participants complete the same questionnaire as was used with state directors of vocational education and executive directors of state advisory committees. Participants indicated which skills and knowledge they thought were important and then which they, themselves, need more training in to improve planning capabilities. Following completion of the questionnaire, they were asked to select their three most pressing training needs and develop an individual plan to obtain the training in terms of how, when and obstacles that could impede their proposed training plans.

SUMMARY

As can be observed, the conference was planned on the basis of "hard" evidence of the skills and knowledge for which more training was needed by state vocational education planning staffs. Evidence was obtained from "significant" persons in each state -- the state director of vocational education and the executive director of the state advisory committee.

Based on this indication of training need, conference topics were chosen which were of high priority, represented the broad areas of the planning function, could be effectively handled in a conference mode, and were feasible in terms of time and resources available. Learning strategies were selected to deliver conference topics in a way to actively involve participants, maximize learning with the time available, and include a variety of strategies. The strategies used were: simulations, readings, formal presentations by resource persons, question and answer discussion, workshop, panel of experts (debate), and self analysis. The conference was evaluated in terms of both product and process as viewed by participants. Participants each formed a plan for continued professional development of their planning capabilities.

CHAPTER IV

PRODUCTS OF PROJECT

As described in the first chapter, the expected project results were: (a) a list of skills and knowledge needed in planning vocational education, (b) definition of the "state of the art" in vocational education planning, (c) a conference addressing a selected group of needs with accompanying learning strategies, (d) individual plans for continued professional development by conference participants, and (e) an evaluation of the conference and a final report of the project. Each of these products will be presented in the section.

NEEDED SKILLS AND KNOWLEDGE FOR STATE PLANNING OF VOCATIONAL EDUCATION

The purpose of this product was to serve as a basis for a long range and broad coverage training program for state vocational education planning staffs. A listing of skills and knowledge would also identify the qualifications which are desirable in individuals being hired to staff a state for planning vocational education. The list of potential skills and knowledge developed in this project and rated in terms of importance by state directors of vocational education and executive directors of state advisory councils was an output of the project which meets the requirements for this product. These two groups represent a "knowledgeable" internal group to state departments of education and vocational education (i.e., state directors) and a "knowledgeable" external group (i.e., advisory councils) who are concerned about vocational education. For these reasons and, since in most cases, there was little difference between the importance attached to various skills and knowledge for state directors of vocational education and executive directors of state advisory committees, these ratings were combined to form an overall rating for each competency. The result of this process was the following list of skills and knowledge in order of importance from high to low:

Skills and Knowledges Which are Essential for State Planning of Vocational Education (combined Average Rating of 3.5 and Greater) --

1. Identify, collect, interpret demographic and manpower data for projecting annual and long-range employment needs by occupational category and skill level.
2. Develop measurable vocational education program goals and objectives.
3. Interpret policies and procedures established by State Boards of Education and Vocational Education.

Skills and Knowledge Which are Very Important to Essential for State Planning of Vocational Education (combined Average Ratings of Greater Than 3.0 But Less Than 3.5) --

4. Evaluate trends in program offerings in terms of the degree to which vocational programs, in the public school and other sectors, are meeting the employment training needs and student enrollment demands.
5. Translate annual and long-range employment needs into occupational courses with identified priorities by geographical area.
6. Interpret state and federal laws and procedures pertaining to vocational education.
7. Develop and present to a board of education, an annual and long-range plan for vocational education.
8. Develop and utilize a management information system to serve a planning, programming, and budgeting system (e.g., follow-up, program enrollment).
9. Project the physical, fiscal, and human needs to accommodate vocational education programs.
10. Establish an articulated structure for implementing and conducting effective programs of vocational education (K-Adult) as an integral part of the state's total educational effort.

11. Identify measurable criteria for final program selection and evaluation.

12. Organize and direct group of staff members and others engaged in planning for a total program.

13. Determine the most appropriate methods for program evaluation.

14. Assess the cost-effectiveness of alternative delivery systems for vocational education (e.g., on-the-job training, institutional training, home-study) and determine the most appropriate programs.

15. Identify and define emerging occupations.

16. Develop a system for organizational feedback and control to aid in future operation, improvement, and change of the vocational education program planning staff.

17. Synthesize available resources and program objectives, and relate them to student needs (youth and adult), manpower demands, and cultural, social and political values.

18. Assist local planners, formally and informally, in identifying alternative strategies for accomplishing program goals and objectives.

19. Develop and describe the relationships between social and economic plans of a state and vocational education.

20. Select and disseminate needed materials and information for state and local program planning.

21. Advise on changes needed in existing programs to accomplish priority goals and on the transition for introducing new programs.

22. Determine the optimal resource and program mix for achieving state objectives.

23. Identify, monitor, and support passage of local, state, and federal policies and laws which foster vocational education.

Skills and Knowledge Which are Very Important to Important for State Planning of Vocational Education (combined Average Rating of Less Than 3.0 But Greater Than 2.5) --

24. Develop a procedure for specifying positions, offices and roles for the administration of program planning and define how these positions, offices, and roles are in keeping with the goals of the entire education department.

25. Evaluate the role of vocational education in relationship to meeting societal needs and individual needs.

26. Delineate and analyze cost-benefit information regarding vocational education programs.

27. Systematically engage in research required for educational program planning.

28. Clearly express oneself for effective intra- and inter-agency communications.

29. Determine cost and need for ancillary services, such as teacher education and curriculum services, for implementing a five-year projected program.

30. Develop a format for communicating need for vocational education to the public.

31. Identify new and innovative vocational programs and ways to encourage schools to adopt improvements.

32. Develop a system for obtaining and disbursing state and federal aid as it relates to legislative guidelines and community control.

33. Use statistical and research procedures and methods to determine the validity of information.

34. Identify local financial and human resources available for program implementation.

35. Inventory the abilities, aspirations, and needs of present and potential students (youth and adult) as they relate to vocational education.

36. Identify public and private resources designated for vocational education, other resources which may be used for vocational education, and constraints within which the funds are to be used.

37. Determine the commitment of business and industry to assist in conducting the vocational education program.

38. Identify expectations and needs of each job incumbent in program planning and determine how the organizational context is or is not meeting the expectations and needs.

39. Translate broad social and economic plans into regular and special vocational programs.

40. Assimilate bits and pieces of research into broader perspectives and determine the implications for program planning.

41. Develop the requisite contextual vocabulary to skillfully communicate with other professionals.

42. Prepare and present staff papers identifying program and resource priorities and requirements.

43. Develop vocational education programs to influence social and economic development (e.g., type and location of industry).

44. Identify his/her own values, needs, skills, abilities, and aspirations and determine the implications for interpersonal communications and effectiveness.

45. Determine existing and future social conditions which have implications for the development of vocational education programming.

46. Delineate the political feelings of rural, urban, and ethnic groups and determine their relationship to vocational education.

47. Identify and determine the relationship between existing public and private vocational instruction programs by geographical area and educational level.

48. Determine opportunities for social, technical, and professional growth for the vocational education program planner.

Skills and Knowledge Which are Important to Very Important in Planning Vocational Education (combined Average Rating of Less Than 2.5 But Greater Than 2.0) --

49. Take into consideration the "image" of vocational education when planning and implementing programs.

50. Identify attitudes of the local population and educational agency toward vocational education for minorities and special needs groups.

51. Write proposals for funding projects to assess need for, operate, and evaluate vocational education programs.

52. Develop insight into human frailties and understand human nature as they affect the development and accomplishment of plans.

53. Design a program of self-development based upon self-assessment and assessment by significant others.

54. Prepare an alternative, "back-up" resource plan to carry out programs projected over the next five years should original resources plan fail.

55. Identify and address moral dilemmas and value conflicts in planning vocational education (e.g., discrimination, energy consumption, government involvement).

56. Characterize the population by geographical areas and contrast local areas with state, regional, and national averages.

57. Utilize current knowledge in environmental impact as a means of evaluating directions to be taken by vocational education.

"STATE OF THE ART" IN VOCATIONAL EDUCATION PLANNING

A second anticipated product of this project involved an attempt to define the status of planning vocational education programs by state department staff. The index used to define the "state of the art" was the degree to which "knowledgeable" persons thought additional training was required by state staff members on various planning skills and knowledge. Those skills and knowledge for which need for training was critical were assumed to be areas in which the "state of the art" was severally lacking. On the other hand, skills and knowledge for which need for training was low or non-existant were assumed to be being performed at an adequate level given the importance of the skills and knowledge. Knowledgeable persons were again made up of state directors of vocational education and executive directors of state vocational education advisory councils. As with the judgements of importance described in previous section, the responses of state directors and executive directors of state advisory councils were combined and an overall average use to report need for training as an index of the "state of the art" in vocational education planning. Skills and knowledge are listed from lowest to highest need for training (i.e., inferred level of performance) as follows:

Skills and Knowledge for Which State Planning Staffs Have Low to Medium Need For Training (combined Average Rating of Less Than 2.0) --

1. Take into consideration the "image" of vocational education when planning and implementing programs.
2. Develop insight into human frailties and understand human nature as they affect the development and accomplishment of plans.
3. Design a program of self-development based upon self-assessment and assessemnt by significant others.

4. Determine opportunities for social technical and professional growth for the vocational education program planner.

5. Identify his/her own values, needs, skills, abilities, and aspirations and determine the implications for interpersonal communications and effectiveness.

6. Utilize current knowledge in environmental impact as a means of evaluating directions to be taken by vocational education.

7. Characterize the population by geographical areas and contrast local areas with state, regional, and national averages.

8. Develop the requisite contextual vocabulary to skillfully communicate with other professionals.

9. Write proposals for funding projects to assess need for, operate, and evaluate vocational education program.

10. Identify and determine the relationship between existing public and private vocational instruction programs by geographical area and educational level.

Skills and Knowledge for Which State Planning Staffs Have Medium to High Need for Training (combined Average Rating of Greater Than 2.0 But Less Than 2.5) --

11. Prepare an alternative, "back-up" resource plan to carry out programs projected over the next five years should original resource plan fail.

12. Prepare and present staff papers identifying program and resource priorities and requirements.

13. Interpret policies and procedures established by State Boards of Education and Vocational Education.

14. Identify and address moral dilemmas and value conflicts in planning vocational education (e.g., discrimination, energy consumption, government involvement).

15. Identify local financial and human resources available for program implementation.

16. Identify attitudes of the local population and educational agency toward vocational education for minorities, and special needs groups.

17. Interpret state and federal laws and procedures pertaining to vocational education.

18. Identify, monitor, and support passage of local, state, and federal policies and laws which foster vocational education.

19. Develop vocational education programs to influence social and economic development (e.g., type and location of industry).

20. Delineate the political feelings of rural, urban, and ethnic groups and determine their relationship to vocational education.

21. Assimilate bits and pieces of research into broader perspectives and determine the implications for program planning.

22. Clearly express oneself for effective intra- and inter-agency communications.

23. Identify expectations and needs of each job incumbent in program planning and determine how the organizational context is or is not meeting the expectations and needs.

24. Translate broad social and economic plans into regular and special vocational programs.

25. Determine cost and need for ancillary services, such as teacher education and curriculum services, for implementing a five-year projected program.

26. Determine the commitment of business and industry to assist in conducting the vocational education program.

27. Select and disseminate needed materials and information for state and local program planning.

28. Inventory for abilities, aspirations, and needs of present and potential students (youth and adult) as they relate to vocational education.

29. Develop a system for obtaining and disbursing state and federal aid as it relates to legislative guidelines and community control.

30. Identify public and private resources designated for vocational education, other resources which may be used for vocational education, and constraints within which the funds are to be used.

31. Develop and present to a board of education, an annual and long-range plan for vocational education.

32. Determine existing and future social conditions which have implications for the development of vocational education programming.

33. Develop a procedure for specifying positions, offices and roles for the administration of program planning and define how these positions, offices, and roles are in keeping with the goals of the entire education department.

34. Systematically engage in research required for educational program planning.

35. Advise on changes needed in existing programs to accomplish priority goals and on the transition for introducing new programs.

36. Organize and direct group of staff members and others engaged in planning for a total program.

Skills and Knowledge for Which State Planning Staffs Have High to Medium Need for Training (combined Average Rating of 2.5 or Greater to 3.0) --

37. Use statistical and research procedures and methods to determine the validity of information.

38. Evaluate the role of vocational education in relationship to meeting societal needs and individual needs.

39. Determine the optimal resource and program mix for achieving state objectives.

40. Identify new and innovative vocational programs and ways to encourage schools to adopt improvements.

41. Develop and describe the relationships between social and economic plans of a state and vocational education.

42. Develop a system for organizational feedback and control to aid in future operation, improvement, and change of the vocational education program planning staff.

43. Synthesize available resources and program objectives, and relate them to student needs (youth and adult), manpower demands, and cultural, social and political values.

44. Develop a format for communicating need for vocational education to the public.

45. Assist local planners, formally and informally, in identifying alternative strategies for accomplishing program goals and objectives.

46. Identify and define emerging occupations.

47. Establish an articulated structure for implementing and conducting effective programs of vocational education (K-Adult) as an integral part of the state's total educational effort.

48. Project the physical, fiscal, and human needs to accommodate vocational education programs.

49. Delineate and analyze cost-benefit information regarding vocational education programs.

50. Identify measurable criteria for final program selection and evaluation.

51. Determine the most appropriate methods for program evaluation.

52. Develop measurable vocational education program goals and objectives.

53. Develop and utilize a management information system to serve a planning, programming, and budgeting system (e.g., follow-up, program enrollment).

54. Evaluate trends in program offerings in terms of the degree to which vocational programs, in the public schools and other sectors, are meeting the employment training needs and student enrollment demands.

Skills and Knowledge for Which State Planning Staffs Have High to Critical

Need for Training (combined Average Rating of Greater Than 3.0) --

55. Identify, collect, interpret demographic and manpower data for projecting annual and long-range employment needs by occupational category and skill level.

56. Translate annual and long-range employment needs into occupational courses with identified priorities by geographical area.

57. Assess the cost-effectiveness of alternative delivery systems for vocational education (e.g., on-the-job training, institutional training, home-study) and determine the most appropriate programs.

CONFERENCE AND ACCOMPANYING LEARNING STRATEGIES

The conference and accompanying learning strategies as a product of this project have been explained in detail in a previous chapter. The conference was focused on topics found to be in high need of training by state vocational education planning staffs. The conference was attended by participants from 23 states and territories. The conference was of three days duration and scheduled as a pre-conference to the American Vocational Association Convention. Learning strategies and their related materials which were used in the conference are included as part of this final report or available as published materials from an original source (e.g., the simulation exercises).

PLANS FOR CONTINUED PROFESSIONAL DEVELOPMENT BY CONFERENCE PARTICIPANTS

The fourth product of the project was a compilation of conference participants' plans for continued professional development. This was accomplished by first having conference participants identify their needs using the same assessment device used with state directors of vocational education and executive directors of state advisory committees (see Appendix I) and then having each participant develop a plan to obtain skills and knowledge of greatest self-perceived need.

Needs of Conference Participants

Table 4 specifies the average need for training ratings[1] for professional development of 24 conference participants as indicated by the participants themselves. Those competencies that received an average need rating of 2.50 or above have a star (*) after the numerical rating. A 2.50 rating constitutes a medium to high need.

Twenty competencies of the 57 received an average rating of 2.50 or above. Of the six dimensions (political, economic, cultural, organizational, personal, and inquiry and communication skills), the personal context was the only dimension that did not include a competency with a 2.50 rating or above. One plausible explanation may be that the personal context contains only three competencies while all the other dimensions contain five or more competencies. In terms of the proportion of competencies in each dimension to the number which received ratings of 2.50 or above, the inquiry and communication skills and the economic dimensions received the highest need ratings respectively.

The competency (number 10) which received the highest average need rating (3.04) is in the economic context and is stated as follows: "Translate annual and long-range employment needs into occupational courses with identified priorities by geographical area." The high need for training rating of competency number 10 together with the remaining 19 competencies receiving high need ratings was indicative of the overall professional development needs expressed by the conference participants.

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[1] The 57 competencies were rated by participants according to their need for additional inservice assistance or training using the following numbering system: 0 = None, 1 = Low, 2 = Medium, 3 = High, and 4 = Critical.

TABLE 4

SELF-RATINGS OF "NEED FOR TRAINING" BY STATE PLANNERS OF VOCATIONAL EDUCATION (NATIONAL TRAINING CONFERENCE PARTICIPANTS)

Competencies	Average Rating of Need for Training (N = 24)
POLITICAL CONTEXT	
1. Interpret state and federal laws and procedures pertaining to vocational education.	2.09
2. Interpret policies and procedures established by State Boards of Education and Vocational Education.	1.68
3. Develop and describe the relationships between social and economic plans of a state and vocational education.	2.55*
4. Delineate the political feelings of rural, urban, and ethnic groups and determine their relationship to vocational education.	1.86
5. Develop measurable vocational education program goals and objectives.	2.39
6. Establish and articulated structure for implementing and conducting effective programs of vocational education (K-Adult) as an integral part of the state's total educational effort.	2.64*
7. Develop a system for obtaining and disbursing state and federal aid as it relates to legislative guidelines and community control.	2.14
8. Identify, monitor, and support passage of local, state, and federal policies and laws which foster vocational education.	1.95
ECONOMIC CONTEXT	
9. Identify, collect, interpret demographic and manpower data for projecting annual and long-range employment needs by occupational category and skill level.	2.88*
10. Translate annual and long-range employment needs into occupational courses with identified priorities by geographical area.	3.04*
11. Project the physical, fiscal, and human needs to accommodate vocational education programs.	2.78*
12. Identify local financial and human resources available for program implementation.	1.96
13. Delineate and analyze cost-benefit information regarding vocational education programs.	2.43

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*Rating of 2.50 or above

TABLE 4 (CONTINUED)

Competencies	Average Rating of Need for Training (N = 24)
ECONOMIC CONTEXT (CONTINUED)	
14. Assess the cost-effectiveness of alternative delivery systems for vocational education (e.g., on-the-job training, institutional training, home-study) and determine the most appropriate programs.	2.50*
15. Determine the commitment of business and industry to assist in conducting the vocational education program.	1.87
16. Determine cost and need for ancillary services, such as teacher education and curriculum services, for implementing a five-year projected program.	2.17
17. Identify and determine the relationship between existing public and private vocational instruction programs by geographical area and educational level.	1.75
18. Identify public and private resources designated for vocational education, other resources which may be used for vocational education, and constraints within which the funds are to be used.	2.09
19. Write proposals for funding projects to assess need for, operate, and evaluate vocational education programs.	1.83
20. Prepare an alternative, "back-up" resource plan to carry out programs projected over the next five years should original resource plan fail.	2.09
21. Develop vocational education programs to influence social and economic development (e.g., type and location of industry).	2.17
22. Identify and define emerging occupations.	2.83*
23. Evaluate trends in program offerings in terms of the degree to which vocational programs, in the public schools and other sectors, are meeting the employment training needs and student enrollment demands.	2.39
24. Determine the optimal resource and program mix for achieving state objectives.	2.75*
25. Develop and present to a board of education, an annual and long-range plan for vocational education.	2.52*
CULTURAL CONTEXT	
26. Evaluate the role of vocational education in relationship to meeting societal needs and individual needs.	2.55*

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*Rating of 2.50 or above.

TABLE 4 (CONTINUED)

Competencies	Average Rating of Need for Training (N = 24)
CULTURAL CONTEXT (CONTINUED)	
27. Synthesize available resources and program objectives, and relate them to student needs (youth and adult), manpower demands, and cultural, social and political values.	2.65*
28. Identify attitudes of the local population and educational agency toward vocational education for minorities, and special needs groups.	2.00
29. Inventory the abilities, aspirations, and needs of present and potential students (youth and adult) as they relate to vocational education.	2.09
30. Characterize the population by geographical areas and contrast local areas with state, regional, and national averages.	2.13
31. Develop a format for communicating need for vocational education to the public.	2.43
32. Translate broad social and economic plans into regular and special vocational programs.	2.41
33. Identify new and innovative vocational programs and ways to encourage schools to adopt improvements.	2.64*
34. Advise on changes needed in existing programs to accomplish priority goals and on the transition for introducing new programs.	2.50*
35. Identify and address moral dilemmas and value conflicts in planning vocational education (e.g., discrimination, energy consumption, government involvement).	2.18
36. Utilize current knowledge in environmental impact as a means of evaluating directions to be taken by vocational education.	2.05
37. Determine existing and future social conditions which have implications for the development of vocational education programming.	2.36
38. Take into consideration the "image" of vocational education when planning and implementing programs.	1.95
ORGANIZATIONAL CONTEXT	
39. Develop a procedure for specifying positions, offices and roles for the administration of program planning and define how these positions, offices, and roles are in keeping with the goals of the entire education department.	2.32

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*Rating of 2.50 or above.

TABLE 4 (CONTINUED)

Competencies	Average Rating of Need for Training (N = 24)
ORGANIZATIONAL CONTEXT (CONTINUED)	
40. Organize and direct group of staff members and others engaged in planning for a total program.	2.50*
41. Identify expectations and needs of each job incumbent in program planning and determine how the organizational context is or is not meeting the expectations and needs.	2.14
42. Develop a system for organizational feedback and control to aid in future operation, improvement, and change of the vocational education program planning staff.	2.91*
43. Develop insight into human frailties and understand human nature as they affect the development and accomplishment of plans.	2.05
PERSONAL CONTEXT	
44. Identify his/her own values, needs, skills, abilities, and aspirations and determine the implications for interpersonal communications and effectiveness.	2.14
45. Determine opportunities for social, technical, and professional growth for the vocational education program planner.	2.36
46. Design a program of self-development based upon self-assessment and assessment by significant others.	2.41
INQUIRY AND COMMUNICATION SKILLS	
47. Systematically engage in research required for educational program planning.	2.23
48. Develop the requisite contextual vocabulary to skillfully communicate with other professionals.	2.09
49. Use statistical and research procedures and methods to determine the validity of information.	2.52*
50. Identify measurable criteria for final program selection and evaluation.	2.50*
51. Determine the most appropriate methods for program evaluation.	2.50*
52. Develop and utilize a management information system to serve a planning, programming, and budgeting system (e.g., follow-up program enrollment).	2.91*

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*Rating of 2.50 or above.

TABLE 4 (CONTINUED)

Competencies	Average Rating of Need for Training (N = 24)
INQUIRY AND COMMUNICATION SKILLS (CONTINUED)	
53. Select and disseminate needed materials and information for state and local program planning.	2.19
54. Assist local planners, formally and informally, in identifying alternative strategies for accomplishing program goals and objectives.	2.27
55. Assimilate bits and pieces for research into broader perspectives and determine the implications for program planning.	2.50*
56. Clearly express oneself for effective intra- and inter-agency communications.	2.45
57. Prepare and present staff papers identifying program and resource priorities and requirements.	2.36

*Rating of 2.50 or above.

Plans for Professional Development

In addition to identifying their needs in terms of the 57 competencies, the conference participants were asked to list the three most important competencies and/or areas of state vocational education program planning for self-development during the next two years. Table 5 lists the competency areas or program planning dimensions in priority order as indicated by 21 conference participants.

The "inquiry and communication skills" competency area was deemed the most crucial dimension of state vocational education planning for self-improvement during the ensuing two years by the 21 participants who responded. The economic dimension received the second highest priority rating for self-improvement. These two dimensions - inquiry and communication skills and economic areas - also received the highest average need for training ratings by the 24 participants when all 57 competencies were rated separately by each participant as depicted in Table 4.

TABLE 5

COMPETENCY AREAS FOR FUTURE PROFESSIONAL DEVELOPMENT ACCORDING TO CONFERENCE PARTICIPANTS

Competency Areas of Planning	Response Priority (%) (N = 21)
Inquiry and Communications Skills Dimension	39%
Economic	22
Cultural	17
Political	11
Organizational	7
Personal	4
TOTAL	100%

To accomplish their plans of self-improvement, the 21 responding conference participants indicated a variety of different modes to enhance their competence in state planning. National conferences and independent study were the two preferred methods to accomplish their plans (Table 6). Although, inservice training and formal course work also received high priority ratings by the conference participants (17 and 13% respectively).

TABLE 6

PREFERRED LEARNING MODES TO ACCOMPLISH PLANS OF SELF DEVELOPMENT ACCORDING TO CONFERENCE PARTICIPANTS

Learning Modes	Response Priority (%) (N = 21)
National Conferences	26%
Independent Study	22
Inservice Training	17
Formal Course Work	13
State Conferences	7
Conventions, State and National	4
On-the-job Training	4
On-site Visitations	4
Consulting with External Staff	3
TOTAL	100%

About 80% of the 21 conference participants who completed a "Plan of Action for Professional Development" indicated that they would begin their plans of self-improvement within the next two years. The remaining participants stated that either they have already started (10%) or they don't know when they were going to start (10%) on their plans for professional development.

Table 7 specifies the constraints the conference participants stated that they would encounter in their plans for professional development. "Time" was listed as the most prevalent constraint with "finances" being a distant second.

"Office politics" was identified as a constraint in 8% of the participants' plans for self-improvement. The top three constraints, time, finances, and office prolitics respectively, constituted 84% of the constraints that the conference participants would encounter in their plans for professional development.

TABLE 7

CONSTRAINTS IN CONFERENCE PARTICIPANTS' PLANS FOR PROFESSIONAL DEVELOPMENT AS INDICATED BY PARTICIPANTS

Constraints	Response Priority (%) (N = 21)
Time	58%
Finances	18
Office Politics	8
Resources Availability (people and materials)	4
Accessability to Formal Courses	2
Lack of Time for Reflective Thought	2
Reluctance to Begin Difficult Task	2
Native Intelligence (myself)	2
Procrastination	2
Release Time from Organization	2
TOTAL	100%

CONFERENCE EVALUATION

After 3:30 P.M. on the last day of the conference, December 5, 1975 the conference participants were asked to complete an evaluation form designed to evaluate the conference and to provide information for planning future conferences.[2] A copy of the evaluation instrument (form) used is shown in Appendix IX. Twenty-four conference participants completed the form and all 24 responded positively to the first question "Were the objectives of the conference stated at the outset?" The conference participants' responses to the remaining questions on the evaluation section are depicted in Tables 8-11.

On the average, 89% of the participants indicated that the relationships between major topics and the conference theme of "State Planning for Vocational Education" was made clear or very clear (Table 8). The only individual topic of the six presented in which the relationship to the major theme was not rated "clear" or "very clear" by 87% or more of the participants was the topic "Assessing the Cost-Effectiveness of Alternative Means of Delivering Vocational Education." Eight participants or 35% indicated an unclear relationship between major topic "C" and the conference theme. Overall, the relationships of individual major topics to the conference theme were made clear (47%) and very clear (42%) as stated by the conference participants.

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[2] The participants' responses (results) to the five questions on "planning future conferences" are listed in Appendix X.

TABLE 8

CONFERENCE EVALUATION[a]: How Clear was the Relationship Made Between Major Topics and the Conference Theme STATE PLANNING FOR VOCATIONAL EDUCATION?

	Response Categories			
	Very Clear	Clear	Not Clear	Total[b]
	%	%	%	%
A. Factors to Consider in Adding, Retaining or Deleting Vocational Education Programs.	50	46	4	100
B. Identifying and Translating Manpower Information for Planning Vocational Education.	33	63	4	100
C. Assessing the Cost-Effectiveness of Alternative Means of Delivering Vocational Education.	22	43	35	100
D. Using a Management Information System in Planning Vocational Education.	52	35	13	100
E. Communications Needed to Make a "Working" Plan for Vocational Education.	57	39	4	100
F. Staffing a State Department for Planning Vocational Education.	38	54	8	100
Average Response Per Category	42	47	11	100

[a] According to responses of 24 conference participants.

[b] Because of rounding errors, each total may not equal 100%.

One person did not respond to topics "C", "D", and "E"; the percentage figures for stated topics were based on responses from 23 conference participants.

Question 3 on the evaluation form asked the conference participants how satisfied they were with four aspects of the conference speakers (Table 9). Viewing the four aspects of the conference speakers collectively, 36% of the participants were partially satisfied while 4% were dissatisfied; but, the majority of participants, 59%, were very satisfied with the conference speakers.

TABLE 9

CONFERENCE EVALUATION[a]: How Satisfied Were You With the Quality of the Following Selected Aspects of the CONFERENCE SPEAKERS?

	Response Categories			
	Very Satisfied	Partially Satisfied	Dissatisfied	Totals[b]
	%	%	%	%
A. Ideas or issues presented.	79	21	0	100
B. Opportunity for questions.	58	33	8	99
C. Relevance of content.	58	38	4	100
D. Effectiveness of delivery.	42	54	4	100
Average Response Per Category	59	35	4	99

[a] According to responses of 24 conference participants.
[b] Because of rounding errors, each total may not equal 100%.

One type of learning activity engaged in by the conference participants was a series of simulation exercises relating to critical issues in planning vocational education.[3] The participants were asked to rate four aspects of the simulation exercises (Table 10). On the average, only 1% of the conference participants were dissatisfied and 26% were partially satisfied. The overwhelming majority, 73%, were very satisfied with the simulation exercises.

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[3] Copa, George H., Geigle, Erwin K., Irvin, Donald E. Jr. Critical Issues in Planning Vocational Education: A Series of Simulation Exercises, Minnesota Research Coordinating Unit for Vocational Education (Minneapolis: University of Minnesota, April, 1976).

TABLE 10

CONFERENCE EVALUATION[a]: How Satisfied Were You With the Quality of the Following Selected Aspects of the SIMULATION EXERCISES?

	Response Categories			
	Very Satisfied	Partially Satisfied	Dissatisfied	Totals[b]
	%	%	%	%
A. Ideas on issues presented.	79	21	0	100
B. Opportunity for discussion.	75	25	0	100
C. Relevance of content.	71	25	4	100
D. Effectiveness of delivery.	67	33	0	100
Average Response Per Category	73	26	1	100

[a] According to responses of 24 conference participants.
[b] Because of rounding errors, each total may not equal 100%.

The conference participants indicated their satisfaction with seven aspects of the total conference and also with the overall conference. Table 11 depicts their responses. On the average of the eight aspects (including overall conference satisfaction) 27% indicated partial satisfaction. Only about 2% responded negatively (dissatisfied) with the eight aspects listed; but, the large majority of conference participants were very satisfied as indicated by 71% of the participants. Considering seven aspects separately (A - G), "Opportunity to discuss issues" (aspect F) received the "lowest" satisfaction rating. Still, 58% and 38% were very satisfied and partially satisfied, respectively. The two "aspects" which received the highest percent of satisfaction rating were "Organization and Operation of the Conference" and "Conference Location and Facilities" (88% were very satisfied with each aspect). Not one conference participant was dissatisfied with the overall conference (Topic H, Table 11). Only 25% indicated a partial satisfaction with the conference. On the other hand, 75% were very satisfied with the overall conference.

TABLE 11

CONFERENCE EVALUATION[a]: How Satisfied Were You With the Quality of the Following Aspects of the TOTAL CONFERENCE?

	Response Categories			
	Very Satisfied	Partially Satisfied	Dissatisfied	Totals[b]
	%	%	%	%
A. Opportunity to socialize.	50	46	4	100
B. Amount of materials received.	79	17	4	100
C. Usefulness of materials received.	67	79	4	100
D. Opportunity for professional development.	63	38	0	101
E. Organization and operation of the conference.	88	13	0	101
F. Opportunity to discuss issues.	58	38	4	100
G. Conference location and facilities.	88	13	0	101
H. Overall conference satisfaction.	75	25	0	100
Average Response Per Category	71	27	2	100

[a] According to responses of 24 conference participants.
[b] Because of rounding errors, each total may not equal 100%.

As a final and important indication as to the effectiveness of the national conference, the participants, in terms of the content presented and discussed, were asked to list two important findings or ideas which they could relate to in their present educational program planning activities. The conference participants responded to the request by listing 37 findings or ideas. In order to relay the significance of what the participants listed and not loose the intended meaning of each idea or finding in relationship to each participant's present endeavors in educational program planning, the 37 items were left in the exact words of the participants and were as follows:

1. Communications.
2. BLS and alternative sources for planning.
3. Criteria for program approval/curtailment
   - Exchange of ideas and reinforcement of thinking.
4. Minimum data requirements defined.
5. Confirmed concept that my state is preceeding in an approved fashion - this was important to me.
6. Need to effectively publicize the plan as well as the accomplishments of vocational education.
7. Position of planning function in organization.
8. Relationship of planning to communication.
9. Techniques in planning.
10. Use of models.
11. A better line of communication with the state staff who has the responsibility for planning.
12. Elements necessary for state level planning of vocational education.
13. Communications use.
14. Factors that can be related to program determination.
15. Development of a planning model.
16. Expansion of MIS.
17. Public relations program.
18. Staffing needs for planning.
19. Better use of data.
20. Better use of existing staff.
21. Translating manpower information into vocational planning.
22. Assessing cost effectiveness.
23. Structure and format of planning model.
24. Ideas from other states in small bits but which impact on developing direction of our planning programs - the number of innovative things.
25. A clear decision making model.
26. The relative importance of the factors involved in planning.
27. Models for planning.
28. Cost-benefit background.
29. Planning models.
30. Management information systems, including follow-up.
31. Factors to be considered in establishing new programs.
32. Planning staff requirements.
33. Processing manpower information.
34. Cost-effectiveness.
35. Received a better understanding of the problems in state planning.
36. Political implications and consensus of alternative action.
37. Inter-agency cooperation.

The above list of 37 ideas and findings can be construed as indicative of what the conference participants: (a) learned at the conference and (b) found relevant for each of their respective state education program planning activities.

BIBLIOGRAPHY

Brandl, John E. Personal interview. Minneapolis, Minnesota: University of Minnesota, June 5 and 11, 1975.

Copa, George H., Imade, U.O., and Geigle, Erwin K. "An Anaylsis of Ideas and Efforts in Planning Vocational Education." Unpublished manuscript, Minnesota Research Coordinating Unit for Vocational Education. Minneapolis, Minnesota: University of Minnesota.

Copa, George H., Geigle, Erwin K., and Irvin, Donald E., Jr. Critical Issues in Planning Vocational Education: A Series of Simulation Exercises. Minnesota Research Coordinating Unit for Vocational Education. Minneapolis, Minnesota: University of Minnesota, April, 1976.

Copa, George H., Geigle, Erwin K., and Imade, U.O. Factors, Priorities, and Information Needs in Planning Vocational Education: Views of Selected Educational Planners in Minnesota. Minnesota Research Coordinating Unit for Vocational Education. Minneapolis, Minnesota: University of Minnesota, March, 1976.

Copa, George H. "Planning Vocational Education." Unpublished manuscript, Minnesota Research Coordinating Unit for Vocational Education. Minneapolis, Minnesota: University of Minnesota.

Fine, Sidney A., Holt, Ann M., and Hutchinson, Maret F. Functional Job Analysis: How to Standardize Task Statements. Methods for Manpower Analysis No. 9. Washington, D.C.: W. E. Upjohn Institute for Employment Research, October, 1974.

Gray, Kenny E. "Competencies Needed by Personnel Engaged in Program Planning in State Divisions of Vocational-Technical Education." Unpublished Ph.D. Dissertation, The Ohio State University, 1970.

Job Descriptions of State Planners for Vocational Education from "Colorado, Delaware, Minnesota, New Jersey, Oklahoma, Pennsylvania, Tennessee, and Wisconsin." State Department of Education: Divisions of Vocational-Technical Education, 1975.

McCracken, J. David. Information Needs of State Directors of Vocational Education. The Center for Vocational and Technical Education, Research and Development Series No. 83. Columbus, Ohio: The Ohio State University, March, 1973.

Morgan, Robert L., Lawrence, John E. S., and Champion, Douglas W. A National Survey of Problems in State Planning for Vocational Education. Dynamic Analysis and Strategic Planning Program Paper No. 2. Raleigh, North Carolina: Center for Occupational Education, North Carolina State University, 1974.

APPENDIX I

ASSESSMENT DEVICE FOR SKILLS AND KNOWLEDGE NEEDS IN STATE PLANNING OF VOCATIONAL EDUCATION

A SURVEY INSTRUMENT FOR THE ASSESSMENT OF NEEDED SKILLS AND KNOWLEDGE FOR STATE VOCATIONAL EDUCATION PLANNING STAFFS

INSTRUCTIONS: This survey instrument is designed to identify the skills and knowledge needed by state staff members who are presently responsible for planning vocational education programs. It is recognized that states vary in terms of the way the program planning function is staffed. Each of the items (competencies) shown, represents a skill and/or knowledge that may be needed by state planners of vocational education programs. Please read each statement carefully and: (a) rate the importance of the competency for state staff personnel responsible for program planning in vocational education to efficiently carry out their job responsibilities and (b) indicate the need for additional in-service assistance or training in the competency by your present program planning personnel in vocational education.

Both the "importance rating" and the "need for additional training" are designated by a numbering system as follows:

IMPORTANCE RATING	NEED FOR TRAINING
0 = Not Applicable	0 = None
1 = Unimportant	1 = Low
2 = Important	2 = Medium
3 = Very Important	3 = High
4 = Essential	4 = Critical

Please indicate the "IMPORTANCE RATING" by placing the appropriate number in the first column following each competency. To identify the "NEED FOR TRAINING" please place the appropriate number in the second column after each competency. If you would like to add competencies that you feel are missing from the list, please do so; but, be sure to also complete the "IMPORTANCE RATING" and the "NEED FOR TRAINING" for each competency that you list.

Of course, complete confidentiality will be maintained throughout this effort. At no time will particular individuals or states be associated with the ratings in published reports.

Return this survey instrument to the Minnesota Research Coordinating Unit for Vocational Education, Peik Hall 145, University of Minnesota, Minneapolis, Minnesota 55455. A stamped, self addressed envelope is provided.

POLITICAL CONTEXT FOR PLANNING: The purpose of the political dimension is for the state planners of vocational education to have a knowledge of state and federal legislation and be able to determine implications for vocational education. Knowledge of and Ability to:	Place the appropriate number in each column after every competency. IMPORTANCE RATING 0 = Not Applicable 1 = Unimportant 2 = Important 3 = Very Important 4 = Essential	NEED FOR TRAINING 0 = None 1 = Low 2 = Medium 3 = High 4 = Critical
1. Interpret state and federal laws and procedures pertaining to vocational education.		
2. Interpret policies and procedures established by State Boards of Education and Vocational Education.		
3. Develop and describe the relationships between social and economic plans of a state and vocational education.		
4. Delineate the political feelings of rural, urban, and ethnic groups and determine their relationship to vocational education.		
5. Develop measurable vocational education program goals and objectives.		
6. Establish an articulated structure for implementing and conducting effective programs of vocational education (K-Adult) as an integral part of the state's total educational effort.		
7. Develop a system for obtaining and disbursing state and federal aid as it relates to legislative guidelines and community control.		
8. Identify, monitor, and support passage of local, state, and federal policies and laws which foster vocational education.		
ECONOMIC CONTEXT FOR PLANNING: The purpose of the economic dimension is for the state planners of vocational education to have a knowledge of the economic systems and determine its implications for implementing vocational education. Knowledge of and Ability to:		
1. Identify, collect, interpret demographic and manpower data for projecting annual and long-range employment needs by occupational category and skill level.		
2. Translate annual and long-range employment needs into occupational courses with identified priorities by geographical area.		
3. Project the physical, fiscal, and human needs to accommodate vocational education programs.		
4. Identify local financial and human resources available for program implementation.		
5. Delineate and analyze cost-benefit information regarding vocational education programs.		
6. Assess the cost-effectiveness of alterntive delivery systems for vocational education (e.g. on-the-job training, institutional training, home-study) and determine the most appropriate programs.		

Place the appropriate number in each column after every competency.

ECONOMIC CONTEXT FOR PLANNING: (continued)

Knowledge of and Ability to:	IMPORTANCE RATING 0 = Not Applicable 1 = Unimportant 2 = Important 3 = Very Important 4 = Essential	NEED FOR TRAINING 0 = None 1 = Low 2 = Medium 3 = High 4 = Critical
7. Determine the commitment of business and industry to assist in conducting the vocational education program.		
8. Determine cost and need for ancillary services, such as teacher education and curriculum services, for implementing a five-year projected program.		
9. Identify and determine the relationship between existing public and private vocational instruction programs by geographical area and educational level.		
10. Identify public and private resources designated for vocational education, other resources which may be used for vocational education, and constraints within which the funds are to be used.		
11. Write proposals for funding projects to assess need for, operate, and evaluate vocational education programs.		
12. Prepare an alternative, "back-up" resource plan to carry out programs projected over the next five years should original resource plan fail.		
13. Develop vocational education programs to influence social and economic development (e.g. type and location of industry).		
14. Identify and define emerging occupations.		
15. Evaluate trends in program offerings in terms of the degree to which vocational programs, in the public schools and other sectors, are meeting the employment training needs and student enrollment demands.		
16. Determine the optimal resource and program mix for achieving state objectives.		
17. Develop and present to a board of education, an annual and long-range plan for vocational education.		

CULTURAL CONTEXT FOR PLANNING: The purpose of the cultural dimension is for state planners of vocational education to have a knowledge of a heterogenous population and determine the implications for vocational education program planning when a diversity of beliefs, attitudes, expectations, and behaviors exist.

Knowledge of and Ability to:		
1. Evaluate the role of vocational education in relationship to meeting societal needs and individual needs.		
2. Synthesize available resources and program objectives, and relate them to student needs (youth and adult), manpower demands, and cultural, social and political values.		

CULTURAL CONTEXT FOR PLANNING: (continued) Knowledge of and Ability to:	Place the approrpriate number in each column after every competency. IMPORTANCE RATING 0 = Not Applicalbe 1 = Unimportant 2 = Important 3 = Very Important 4 = Essential	NEED FOR TRAINING 0 = None 1 = Low 2 = Medium 3 = High 4 = Critical
3. Identify attitudes of the local population and educational agency toward vocational education for minorities, and special needs groups.		
4. Inventory the abilities, aspirations, and needs of present and potential students (youth and adult) as they relate to vocational education.		
5. Characterize the population by geographical areas and contrast local areas with state, regional, and national averages.		
6. Develop a format for communicating need for vocational education to the public.		
7. Translate broad social and economic plans into regular and special vocational programs.		
8. Identify new and innovative vocational programs and ways to encourage schools to adopt improvements.		
9. Advise on changes needed in existing programs to accomplish priority goals and on the transition for introducing new programs.		
10. Identify and address moral dilemmas and value conflicts in planning vocational education (e.g. discrimination, energy consumption, government involvement).		
11. Utilize current knowledge in environmental impact as a means of evaluating directions to be taken by vocational education.		
12. Determine existing and future social conditions which have implications for the development of vocational education programming.		
13. Take into consideration the "image" of vocational education when planning and implementing programs.		
ORGANIZATIONAL CONTEXT FOR PLANNING: The purpose of the organizational dimension is for the state planners of vocational education to have a knowledge of formal organizations and be able to function effectively and efficiently within the organizational mode. Knowledge of and Ability to:		
1. Develop a procedure for specifying positions, offices and roles for the administration of program planning and define how these positions, offices, and roles are in keeping with the goals of the entire education department.		
2. Organize and direct group of staff members and others engaged in planning for a total program.		

	Place the appropriate number in each column after every competency.	
ORGANIZATIONAL CONTEXT FOR PLANNING: (continued) Knowledge of and Ability to:	IMPORTANCE RATING 0 = Not Applicable 1 = Unimportant 2 = Important 3 = Very Important 4 = Essential	NEED FOR TRAINING 0 = None 1 = Low 2 = Medium 3 = High 4 = Critical
3. Identify expectations and needs of each job incumbent in program planning and determine how the organizational context is or is not meeting the expectations and needs.		
4. Develop a system for organizational feedback and control to aid in future operation, improvement, and change of the vocational education program planning staff.		
5. Develop insight into human frailties and understand human nature as they affect the development and accomplishment of plans.		
PERSONAL CONTEXT FOR PLANNING: The purpose of the personal dimension is for the state planners of vocational education to have knowledge about themselves and determine how their personality and social behavior effects group processes and organizational effectiveness. Knowledge of and Ability to:		
1. Identify his/her own values, needs, skills, abilities, and aspirations and determine the implications for interpersonal communications and effectiveness.		
2. Determine opportunities for social, technical, and professional growth for the vocational education program planner.		
3. Design a program of self-development based upon self-assessment and assessment by significant others.		
INQUIRY AND COMMUNICATION SKILLS FOR PLANNING: Assuming the individual has knowledge of effective administrative behavior, the purpose of this dimension is for the state planners of vocational education to be able to systematically integrate that knowledge and utilize it effectively. Knowledge of and Ability to:		
1. Systematically engage in research required for educational program planning.		
2. Develop the requisite contextual vocabulary to skillfully communicate with other professionals.		
3. Use statistical and research procedures and methods to determine the validity of information.		

Place the appropriate number in each column after every competency.

INQUIRY AND COMMUNICATION SKILLS FOR PLANNING: (continued)

Knowledge of and Ability to:	IMPORTANCE RATING 0 = Not Applicable 1 = Unimportant 2 = Important 3 = Very Important 4 = Essential	NEED FOR TRAINING 0 = None 1 = Low 2 = Medium 3 = High 4 = Critical
4. Identify measureable criteria for final program selection and evaluation.		
5. Determine the most appropriate methods for program evaluation.		
6. Develop and utilize a management information system to serve a planning, programming, and budgeting system (e.g. follow-up, program enrollment).		
7. Select and disseminate needed materials and information for state and local program planning.		
8. Assist local planners, formally and informally, in identifying alternative strategies for accomplishing program goals and objectives.		
9. Assimilate bits and pieces of research into broader perspectives and determine the implications for program planning.		
10. Clearly express oneself for effective intra- and inter-agency communications.		
11. Prepare and present staff papers identifying program and resource priorities and requirements.		

APPENDIX II

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APPENDIX III

CONTENTS OF CONFERENCE NOTEBOOKS

CONTENTS OF CONFERENCE NOTEBOOKS

I. Title Page

II. Program

III. Participants, Resource Persons, and Project Staff

IV. Background Reading and Information
  A. A Planning Model of Vocational Education.
  B. A Strategy for Planning Vocational Education.
  C. Cost Effectiveness of Alternative Learning Technologies in Industrial Training--A Study of In-Plant Training and Vocational Schools.
  D. "A Critique of the Declaration of Independence".
  E. Skills and Knowledge Needed by State Vocational Education Planning Staffs.
  F. Importance and Need for Training Ratings of Skills and Knowledge Needed by State Vocational Education Planning Staffs.
  G. An Analysis of Ideas and Efforts: Review of Planning in Vocational Education (Bibliography).
  H. An Instrument for the Assessment of Professional Development Skills and Knowledge for State Vocational Education Planning Staffs.

V. Simulations
  A. Background Information.
  B. For What Occupations Does Vocational Education Provide Training.
  C. Labor Market Needs, People Needs, and Vocational Education.
  D. At What Level of Vocational Education Should the Program be Offered.
  E. Where Should Vocational Education Be Geographically Located.
  F. How Does Vocational Education Relate to the Rest of Education.
  G, Fact Sheets 1-18.

VI. Conference Papers
  A. Interagency Agreement for the Development of Occupational Manpower Education.
  B. The Occupational Employment Statistics Program: A Valuable Source of Manpower Data for Vocational Educators.
  C. Observations on the DOL-OE Inter-Agency Agreement for the Development of Occupational Manpower Information.
  D. Excerpts From the Report Entitled: Manpower Data and Vocational Education: A National Study of Availability and Use.
  E. Decision Making Based on Follow-Up Information.

VII. Conference Evaluation and Planning Future Conferences.

VIII. Notes.

APPENDIX IV

CONFERENCE PROGRAM

NATIONAL CONFERENCE: STATE PLANNING FOR VOCATIONAL EDUCATION

December 3-5, 1975
Anaheim Convention Center
Anaheim, California

CONFERENCE PROGRAM

Wednesday, December 3

8:00 Introduction to Conference --- George Copa and Melvin Johnson

FOCUS: Factors to Consider in Adding, Retaining or Deleting Vocational Education Programs

8:15 A Simulation Problem -- Conference Staff

9:45 Break

10:00 Discussion and Response

10:45 From Factors to a Model for Planning Vocational Education -- George Copa

11:30 Lunch

FOCUS: Identifying and Translating Manpower Information for Planning Vocational Education

1:00 An Introduction -- Conference Staff

1:15 A Federal Perspective -- Richard Demsey

2:15 A State's Perspective -- Robert Balthaser

3:00 Break

3:15 Future Progress through Inter-Agency Cooperation -- Donald Drewes

4:00 Summary of the Day's Activities -- Conference Staff

Thursday, December 4

FOCUS: Assessing the Cost-Effectiveness of Alternative Means of Delivering Vocational Education

8:00 An Introduction -- Conference Staff

8:15 Public vs. Private Vocational Schools, Secondary vs. Post-Secondary vs. Adult Level Programs, Geographic Location of Programs -- A Simulation Problem

9:30 Discussion and Response - Conference Staff

10:00 Break

10:15 Locating Geographically Specific Manpower Information and Educational Programs Information of Use in Planning Vocational Education -- Bruce McKinlay

11:15 Summary -- Conference Staff

11:30 Lunch

FOCUS: Using a Management Information System in Planning Vocational Education

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1:00 An Introduction -- Conference Staff

1:15 Assessment of Information Needs -- Conference Staff

1:45 Organizing A Management Information System

2:15 Decision Making Based on Follow-Up Information -- Melvin Johnson

3:00 Break

3:15 Integrating Information and Assessing Alternatives -- Charles Hopkins

4:00 Summary of the Day's Activities -- Conference Staff

Friday, December 5

FOCUS: Communications Needed To Make A "Working" Plan For Vocational Education

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8:00 An Introduction -- Conference Staff

8:15 Who, What, How -- Warren Gahlon

9:15 Break

9:30 Workshop

11:00 Discussion and Response -- Conference Staff

11:30 Lunch

FOCUS: Staffing A State Department For Planning Vocational Education

1:00 An Introduction -- Conference Staff

1:15 Tasks To Be Done In State Planning For Vocational Education -- Erwin Geigle

1:45 Alternative Organizational Patterns for State Planning of Vocational Education -- Panel Discussion

2:45 Break

3:00 Your Future Needs and Plans for Professional Development -- Erwin Geigle

3:30 Conference Summary and Evaluation -- Conference Staff

APPENDIX V

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APPENDIX VI

PREPARED CONFERENCE PAPERS

OBSERVATIONS ON THE DOL-OE INTER-AGENCY AGREEMENT FOR THE DEVELOPMENT OF OCCUPATIONAL MANPOWER INFORMATION

by
D. W. Drewes[1]

On August 22, 1975 the Department of Labor and the Office of Education entered into an interagency agreement for the development of occupational manpower information. The Manpower Administration, the Bureau of Labor Statistics, and the Office of Education as signatory agencies agreed to (1) work toward the development of an occupational manpower information system which would satisfy the needs of the three agencies; (2) coordinate research and development in the area of occupational manpower information so as to avoid duplication of effort; (3) work towards the development of improved information on national, state and local level manpower needs; (4) plan and develop a systematic approach for obtaining, assessing and delivering information on manpower demand and supply; and (5) raise the understanding of users and developers at state and local levels.

To accomplish these objectives, an Occupational Manpower Information Coordinating Committee has been established. It is the function of this committee to (1) identify potential research and other program areas; (2) recommend policy program needs, and changes in administrative procedures to enhance effectiveness and efficiency; (3) coordinate and conduct workshops designed to improve communications among education administrators and planners, employment security agency administrators and research personnel, manpower planning agencies and representatives of the signatory agencies; and (4) develop and recommend a consolidated program to be implemented at the state and local levels.

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[1] D. W. Drewes is Associate Director, Center for Occupational Education at North Carolina State University, Raleigh, North Carolina.

The stated purpose of the agreement is ". . . to establish the national leadership essential to coordinate legislatively mandated activities related to occupational manpower information." Since the CETA legislation calls for the Secretary of Labor to develop ". . . a comprehensive system of labor market information on a national, state, local, or other appropriate basis . . . " and since the new vocational education legislation is likely to mandate the development of a national vocational education information system inclusive of occupational manpower information, the intent of the agreement may require that the joint efforts of the signatory agencies be directed at the development of a national occupational manpower information system.

Let us then consider the implications of a national occupational information system for vocational education. An immediate implication would be the need for standardization of concepts, definitions and methods to insure comparability of manpower demand and supply information across state and local levels. Comparable data on occupational manpower demand would require uniform definitions of demand and standardized demand estimation procedures as well as a standard occupational classification scheme of sufficient scope to meet vocational and manpower programmatic needs. Vocational needs include provision for new and emerging occupations as well as for agri-business, technical, paraprofessional and health related occupations. Comparability of data on the kinds and numbers of trained manpower supplied by vocational education would require commonly accepted operational definitions as to what constitutes a vocational education program, student, completor, and early leaver. Consensus on the occupational orientation of each vocational education program would have to be achieved in order to determine the occupational supply of trained manpower provided by vocational education. Standardized methods for the estimation of future program enrollments, completions, and early terminations would have to be developed and implemented nation-wide in order to enable uniform comparisons of projected occupational supply with anticipated future occupational demand.

Given these requirements, one might reasonably speculate as to how they might be achieved. On the demand side, the Occupational Employment Statistics (OES) Program of the Department of Labor is designed to provide information on current and future occupational manpower requirements at the national, state and local levels. The OES Program consists of three elements: (1) the OES survey, (2) the National/State Industry-Occupation Matrix System, and (3) state and area occupational projections. The OES survey, currently being conducted in 31 states, collects wage and salary employment data from a statistical sample of nonfarm establishments. These data are used to estimate total employment for more than 2000 occupations for state and sub-state areas. The national/state industry-occupation matrices (one for each state and the District of Columbia) which are consistent in concept, format and data base with a national industry-occupation matrix. An industry-occupation matrix is a tabular arrangement of occupational employment for each of a number of industries for a given time period and for a given geographic area. At present, the matrices cover some 400 occupations which are cross-classified by over 200 industries. Plans are underway, however, to extend the occupational coverage and to incorporate the results of the OES survey. Using the techniques described in the series of publications entitled Tomorrow's Manpower Needs, the Bureau of Labor Statistics has provided a computerized system for the projection of state and area manpower needs. These techniques have currently been applied to reduce projections for all states and SMSA's in excess of 250,000 population. Techniques are under development which will permit the projection technique to be applied to any labor market area in excess of 50,000.

Unfortunately, no comparable system exists in the area of occupational supply. Procedures used by state agencies vary considerably. Some states have the capability to obtain data on program outputs of proprietary schools, manpower programs and on-the-job training while others are not able to obtain program specific information on the output of public postsecondary institutions. Although BLS has recently published a revised procedure for linking occupations to OE program codes, there is currently no procedure that is uniformly accepted and applied by the field.

What is urgently needed to promote the development of a comparable occupation supply information system is a concerted DOL-OE research, development and implementation effort. BLS could be given the responsibility for research and developing procedures for the estimation of current and projected occupational supply and for providing technical assistance in their implementation. The Manpower Administration and the Office of Education could be responsible for dissemination and implementation in state employment service agencies and state vocational education agencies. OE could assume a leadership role in the establishment of standardized definitions through a participation process designed to elicit field support. Definitions, once established, could be legitimized by official agency endorsement and the procedures sanctioned by requiring them to be utilized in State Plan preparation.

Linkage of an occupational supply information system to be developed with the existent OES program would provide the basis for an occupational manpower information system. Field implementation of the system, however, will require the cooperative efforts of labor and vocational education at the national, state and local levels. The potential for cooperation at the national level is clearly inherent in the interagency agreement. Continued cooperation in system development at the regional level will require formal organization arrangement. One possibility is to establish a Regional Occupational Manpower Information Coordinating Committee in each region with the assigned responsibility of providing technical and administrative assistance to the states in the implementation and use of an occupational manpower system. Such assistance could include training and administrative guidelines designed to facilitate system implementation and use. One possibility would be to encourage the establishment of a State Manpower Information Coordinating Committee in each state with representation from secondary and post-secondary vocational education, state employment security and state manpower services agencies. These agencies would be encouraged to implement and utilize a consolidated program at the state and local levels for obtaining and delivering occupational manpower information that would satisfy the planning and operational needs of vocational education and manpower training programs.

Given the costs associated with the development and implementation of uniform occupational demand and supply manpower information system, it is reasonable to inquire as to what benefits would likely occur to state and local vocational education agencies. First and foremost would be an anticipated savings of resources. The existence of a uniform occupational information system would alleviate the necessity for states and locals to invest resources in duplicative development costs and costly employer surveys. Coordinated research and developmental efforts would result in more efficient use of available resources in that research results could be centrally disseminated and would be uniformly applicable since systems would be standardized across all agencies. Changes in system design would be a federal rather than a state responsibility. Federal agencies would provide technical assistance in system implementation and use. State and local resources could be invested in expanding the system to meet special state and local needs rather than in basic developmental costs. Standardized concepts, definitions and methodologies would allow for comparability of data across state and local levels. Standardization would enable the development of training packages designed to raise the level of understanding and use of occupational data in program planning and evaluation.

An occupational manpower information system could be an initial step in the development of an occupational information system of which current and projected demand and supply information is an integral part. Additional information might include: Locational information on area employers; establishment of employment potential for special workers' groups by occupations; characteristics of workers customarily hired by occupation, anticipated changes in characteristics of workers customarily hired; description of typical job duties; wage and salary information by occupation; listing of agencies offering education or training by related occupations; apprenticeship opportunities by establishment; licensing and/or credentialing requirements. An occupational information system would facilitate individual career decision-making and would serve to augment the resources typically available to vocational counseling and guidance activities in schools and other human resource development agencies.

The intent of this paper is to sketch out possible implications for vocational education of the recently signed interagency agreement. All are within the realm of technological possibility. Whether they are achieved depends upon the extent of national, state and local commitment. If the field wishes to influence the future courses of action, they should move to make their wishes known.

LOCATING GEOGRAPHICALLY SPECIFIC MANPOWER INFORMATION AND EDUCATIONAL PROGRAM INFORMATION OF USE IN PLANNING VOCATIONAL EDUCATION

by
Bruce McKinlay[1]

The title for this paper highlights two crucial elements of decisions, "locating" information and putting it to "use". In this instance the information concerns occupations and educational programs, the use is vocational education.

Rather than reciting the obvious or revealing the obscure data elements in local vocational education planning, the discussion will describe a general approach to filling the gaps that are so numerous in manpower data at the local level. The approach places heavy reliance on operational data and informal sources to supplement established data programs. How this approach is used in the preparation of career information will be described, using as an illustration the compilation of information about educational programs. The complementarity of career planning and program planning will be discussed, and the benefits of multiple use of data will be seen in the experience of a manpower information service for program planners, where consultation proved to be the key to communicating the findings.

The Complementarity of Career and Program Planning

Two of the major uses of manpower information are program planning and career planning. There are important differences between program planning and career choice, but there are also compelling reasons to view the two as complementary.

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[1] Bruce McKinlay is Director, Oregon Career Information System at the University of Oregon, Eugene, Oregon.

The differences between the two are captured in the different objectives, capabilities and information needs of the planner and the consumer. The planner intends to design something new that will find acceptance, whether in the market or by some other test of social utility. The planner has skills as an engineer, educator, or economist which constitute a special competence for the job. That special competence enables the planner to work out details while avoiding naive mistakes in the design of a product or program. Thus, the planner, through specialization, has the sophistication to use specific data.

The individual career planner, on the other hand, may be characterized more as a consumer. The objective for that individual is not the design of new options, but choice among existing options. Rather than specialize in making certain kinds of career choices, the individual must survey a wide range of options, choose which ones to exercise, and do so with generalized decision-making skills and a limited understanding of technical information. In contrast to the planner, the consumer is an unsophisticated user of occupational and educational data, but a user nonetheless. His or her incentives are great, for personal as well as social consequences follow from the choice.

The consumer has less specialized technical understanding of information sources and is less tolerant of the fragmentary and inconclusive data on which both program and career decisions must be based today. Thus effective career information must have two hallmarks, analysis and access. For each of numerous topics, the analysis must be as conclusive as data permit, and it must be accessible in places and forms that facilitate its use by career planners.

These differences between planners and consumers are real and they must be understood by planners as they consider how to satisfy these two needs for information, lest we project our own abilities and needs onto others.

Nevertheless the similarities are more pronounced; career and program planning are complementary. The best educational programs are overlooked or misapplied unless students have clear career plans. At the same time, career plans are unrealizable unless appropriate vocational education programs are available.

Good career information ultimately reinforces the program planner in another way as well. Whatever problems the planner has in initiating programs, he or she has even less satisfactory means of controlling their size and providing for the eventual phase-down of programs. Every experienced planner has seen programs which were barely justifiable for 20 students to grow to 60. Whereas initial program approval is based in part on labor market data, continuation is based on experience, incentives for organizational maintenance, the influence of an employer constituency, and student demand. It is in this last area that career information can be facilitative, for career information complements planning by influencing the demand for education in a noncoercive way.

Besides complementing each other, career and programming must draw from a common, but inadequate, pool of information. A career information system's experience in locating sources, especially at the local level, has its usefulness to program planning, even though sources that serve well enough for one purpose are sometimes less satisfactory for the other.

Consequently, it is of more than passing interest that career information systems are now emerging. To serve the career information needs of its population, Oregon established a public, interagency consortium with an overriding user orientation. The staff perform three functions -- to obtain and synthesize occupational and educational data, to manage attractive and efficient delivery systems and to help school and agency staff integrate the resulting information into instructional and counseling programs.

Oregon is neither the first nor the only state to work in this area. Numerous states have undertaken portions of the task, and nine others are now constructing similarly comprehensive programs. Iowa is doing so with its own funds, while Alabama, Colorado, Massachusetts, Michigan, Minnesota, Ohio, Washington and Wisconsin are being supported by the Labor Department's new Occupational Information Service. All are pledged to be self-supporting within four years.[2]

Sources of Local Information

Both career information systems and local vocational education planners face the fact that, for good economic and historical reasons, there is much less data available for local areas than for states and the nation. Whereas national and state anaylses can (and must) be data based, the amount and quality of data falls off rapidly in local areas.

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[2] Timothy Larkin. "Improving Our Rite of Passage." American Education, May 1975 and "Report to the Senate Committee on Labor and Public Welfare and to the House Committee on Education and Labor, as Specified in CETA, Section 312(f)." Manpower Report of the President (Washington, D.C.: U. S. Government Printing Office, April 1975), pp. 183-189.

Consequently, local analysis relies much more extensively on informal sources and required competent analysts to know the uses and limits of those sources. This discussion of local sources, many of which are informal, is obviously not a step-by-step procedure. There is nothing that methodologically dramatic involved, but it can give a flavor of the approaches that can be used.

Any discussion of geographically and occupationally specific manpower data sources in the 1970's must rest on a realistic appraisal of the present state of the art.

Data Programs. One can begin with the established and growing data programs such as the Census, Occupational Employment Statistics and Area Wage Surveys. There is no need to describe their output here, but a quick review of their geographic coverage will illustrate the limits on local analysis. The Census is, of course, a standard, but it presents detailed occupational data only for states and SMSA's of 250,000 or more population. Its value in area analysis is also limited by its infrequent publication and the fact that its national occupational categories may leave major local employment sources in "miscellaneous", "other", or "N.E.C." categories.

The Occupational Employment Survey is the most promising new occupational program, but like most social data programs it suffers from an inadequate budget. It is not yet operated in all states, and covers only major metropolitan areas where it is operated.

The Bureau of Labor Statistics' Area Wage Surveys provide additional useful occupational data, but they too cover only large occupations in large areas.

These major sources illustrate one of the realities of area data: occupational data are moderately good for areas of 250,000 and larger; data are poor, often based on inferences from large areas, for areas of 50-250 thousand; and they are virtually nil for small and very small areas. It is no slur to say that these sources of data are incomplete, for they are the cornerstones of our intelligence about the labor market and without them we would be completely without foundation for labor market analysis.[3] But when we undertake area analysis, we must recognize the limitations of the major data programs.

It is easy to make the data system look worse than it is. Researchers and administrators must be realistic about the questions we expect to answer (as distinct from the questions that are relevant). Examples of exaggerated expectations are all too common: requests for labor market data by school district, or outlook for sub-specialties such as nurses with Bachelor's degrees. Such questions are asked, but they make unrealistic demands on a general purpose data system. We will not soon have that kind of detail; the demand may never justify having such detailed data continuously available. A realistic response recognizes the market area for an occupation and deals in whole occupations, not specialties.

Likewise, we should avoid the temptation to blame the data system for political timidity. In such high-status fields as data processing or institutionally useful ones as printing, the data are often blamed for inadequacies that seem less serious when only the training value of a proposal is at issue.

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[3] A 28-item model system is described in Margaret Thal-Larsen, with Stephen Laner and Donald Mayall, Requirements and Design of a Labor Market Information System for a Large Metropolitan Area (Berkeley, CA: Human Factors in Technology Research Group, Department of Industrial Relations and Operations Research, University of California, November 1972).

Without slighting formal data sources, we can concentrate our discussion on techniques for filling the gaps among the reliable data programs, and filling them in ways that are efficient and productive. The first step in choosing which gaps to fill is obviously a realistic appraisal of one's resources and the tradeoffs that must be made among the following:

occupational detail - whether to deal with broad occupational fields or detailed occupations

topics - how many aspects of each occupation to describe

precision - how exact one must be before acting

currency - how frequently data must be updated to be useful for the purpose

localization - what labor market areas are appropriate

Obviously these dimensions are competitive, and choices for emphasis depend on the use to be made of the data. Experience with program planning and career choice indicates similar priorities. Probably the most significant difference is on the matter of precision. Whereas program planning requires judgments about program size and therefore needs to quantify future demand and supply, career planning, deciding for a single individual, can be satisfied with relative magnitudes and is most concerned with such qualitative aspects as consistency of growth or the effect of affirmative action on outlook for particular applicants.

To the extent that non-quantified information is tolerable to program planning (it is rarely wholly acceptable), some of the techniques used in generating career information will be facilitative.

It is first useful to recognize that there are numerous sources of information, and the less satisfactory the primary measure the more one seeks indicators to fill the gaps. In a report on information development work in Oregon's Career Information System, the staff listed 63 frequently used sources or types of sources from nearly 30 manpower, education and economic development agencies and professional, trade and employee associations.[4] The longer one works as a user of data, the more conversant he or she becomes with primary data sources, their limits and ways to fill the gaps.

Three principal types of data are available (1) the labor market data sources, of the types described above, (2) operational data such as job bank summaries and (3) informal sources, usually individuals knowledgeable about an occupation because of their positions as labor market intermediaries. Some comments about the latter two categories will indicate their contributions.

Operations data. Whereas the Current Employment Survey and other such data sources are compiled specifically for the purpose of labor market analysis, operations data are accumulated as a by-product of an operating job placement, training, income maintenance or licensing program. Data such as the Job Bank Openings Summary, college placement service reports, unemployment insurance reports and employer pay scales are of these types. Such data are usually compiled for managerial purposes, but may also provide useful indications of labor market events. Hence, they are useful supplements to the labor market data programs.

They are indicators rather than direct measures of the labor market in that they cover only the activity of the program, and they reflect administrative as well as labor market changes. They require skill to interpret correctly, but can add useful indications of what is happening in the labor market.

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[4] Bruce McKinlay, Developing a Career Information System (Eugene, Oregon: University of Oregon, 1974), pp. 45-53.

Informal sources. Informal sources are usually individuals such as managers of professional registries or placement services, principal employers, employee associations, etc. As with any non-empirical source, their observations reflect both labor market events and their own perceptions, but experience teaches the analyst, like the good reporter, to question and to listen discriminatingly.

One useful technique for tapping informal sources is systematically to submit analyses to individuals with a variety of perspectives. Such Review Panels permit reaction both to statements of fact and to interpretation. Most perspectives are tapped when the Review Panel includes: an employer, an employee in the occupation, a trainer for the occupation, a placement officer, and, if available, someone who specializes in studying the occupation. People on Review Panels rarely challenge the information head-on, but frequently raise questions worth examining or note ambiguous statements. Their attention can be focused on specific topics with a simple questionnaire asking, for example, whether the occupational title is the one commonly used in the industry, or if there are important methods of entry not described in the material. Responses nearly always require further inquiry with other sources before changes are made in the material. These panels need not meet, but can individually review material mailed to them. They also lack the public relations role of vocational education advisory committees.

Compiling Local Data: The Case of Educational Programs

We can illustrate this approach to development of local data with educational information. It is interesting to do because an inventory of educational programs is an important component of a career information system that is useful in program planning, but is not often considered part of a labor market information system. As with occupations, information is less complete than we would wish, but we can make a respectable start by using the three kinds of sources described above -- planning data, operations data and informal sources.

As with labor market data, the job is not just compiling data, but knowing what data to compile and arranging it to get the most information from it.

First, the task requires a sound conceptual framework. In this case, that is one which does not confuse educational programs and occupations and avoids artificial distinctions among programs. Two common problems are to list educational programs under occupational groupings and to distinguish programs on their institutional sponsorship rather than their content. The first implies more than we know about the relationship of education and work, while the second obscures the essential similarities and differences among programs.

Attempting to classify educational programs under occupational headings quickly reveals that something is wrong. Not all programs have career objectives, so where do you put "history". Some programs have multiple career objectives, so which one do you choose? Listing programs under occupational headings implies that those programs qualify graduates for employment there, but we do not have the data to substantiate that association. Looking at it from the occupational side, we should not obscure the fact that there are various ways to prepare for most occupations or imply that occupations without formal training programs are unimportant. It is both more feasible and more functional to use an educational taxonomy for classifying programs, not an occupational one. With this approach, we can list "accounting" programs, not accountant or bookkeeper training, we can list "history", and we avoid the presumption of essential and direct correlation between education and work.

Secondly, we must define which programs are to be included and to be systematic and thorough in constructing the list. The obvious inclusions are found in two and four year institutions and in private vocational schools, but there are also various kinds of continuing educational and in-service training which can be included. Including the following kinds of programs seems most feasible to start:

- institutionally based (since reasonably good information is available)
- available to the public (excluding employers' in-service training)
- confer some certificate or degree (to distinguish a program from a few courses)

Even this definition of the field yielded 4,500 programs in the 180 institutions in a small state like Oregon. These criteria omit some kinds of skill development, but they cover the bulk of the education industry and it seems preferable to be thorough with what we attempt to describe rather than to list whatever comes to our attention and, thus, be unaware of what is omitted.

The third essential step is to group these programs, and to do so by content, not by title. One needs only to look at the disparate uses of the title "accounting" by colleges and business schools to see that educational titles can be as deceptive as job titles.

Sources for a master list are a problem here as in occupational information and we can see the use of planning data and the needs to supplement it with operations data and informal sources. In compiling its list, Oregon used the federal HEGIS reports, two lists from the state's education coordinating agency and one from the State Department of Education. This collation showed gaps, dated information and programs inconsistently classified.

Thus, the planning data were supplemented by operations data in the form of catalogues, professional association lists and licensing board reports.

Finally, review by informal sources, namely institutional representatives who had been named by their chief administrators to assist, produced 300 changes, even after the first two sources had been used. One examination of the file indicated that it contains 16 percent more information than any other single source.

For career planning, several educational topics are useful: the length of programs and the degrees conferred, their emphasis (whether occupational or not), principal coursework, methods of instruction, types of institutions offering the programs and names of related programs. The purpose is to convey something of the character of the programs, their similarities and differences. Each institution's program is then listed with the title the school gives it, its length, degrees, emphasis if it is not what the title implies, special costs and prerequisites and applicant queuing.

PROG 353

353 NURSING

MANY SCHOOLS OFFER PROGRAMS INTENDING TO TRAIN REGISTERED NURSES, PRACTICAL NURSES AND/OR NURSES AIDES (SEE DESC 8162 REGISTERED NURSES, DESC 8164 PRACTICAL NURSES, DESC 8166 NURSE AIDES & ORDERLIES). PROGRAMS VARY IN LENGTH & EMPHASIS FROM A 6-WEEK COURSE IN NURSES AIDE/ ORDERLY TO A MASTER'S DEGREE PROGRAM IN NURSING AND NURSING EDUCATION. NURSES AIDE PROGRAMS ARE OFFERED AT SOME COMMUNITY COLLEGES WITH TRAINING TAKING ANYWHERE FROM 6 WEEKS TO 3 MONTHS. THIS PROGRAM INTENDS TO PREPARE PEOPLE TO ASSIST MEDICAL STAFFS. PRACTICAL NURSING PROGRAMS ARE 1-YEAR CERTIFICATE PROGRAMS, OFFERED AT MOST COMMUNITY COLLEGES, & INTEND TO PREPARE PEOPLE TO CARE FOR PATIENTS BY ADMINISTERING MEDICATION, MONITORING EQUIPMENT, CHANGING DRESSINGS, PREPARING MEALS, ETC. REGISTERED NURSING PROGRAMS ARE 2- OR 3-YEAR ASSOCIATE DEGREE OR DIPLOMA PROGRAMS & INTEND TO PREPARE PEOPLE TO ASSIST DOCTORS IN PROMOTING HEALTH CARE, TAKING CARE OF PATIENTS, ADMINISTERING DRUGS, PERFORMING TREATMENTS & ASSISTING IN THE OPERATING ROOM. BACHELOR'S & MASTER'S DEGREE PROGRAMS IN NURSING INTEND TO TRAIN PEOPLE FOR NURSING TASKS AND ADMINISTRATIVE AND TEACHING POSITIONS IN HOSPITALS, CLINICS, SCHOOLS, ETC. (MOST 4-YEAR AND COMMUNITY COLLEGES OFFER THE FIRST YEAR OF BACHELOR'S DEGREE REQUIREMENTS FOR NURSING WHICH CAN BE TRANSFERRED TO A SCHOOL OFFERING A BACHELOR'S DEGREE FOR DEGREE COMPLETION.) SOME COLLEGES OFFER A 2-YEAR UPPER-DIVISION BACHELOR'S PROGRAM OPEN ONLY TO LICENSED REGISTERED NURSES WITH EXPERIENCE.

MOST NURSING PROGRAMS ARE LIMITED IN ENROLLMENT WITH COMPETITION FOR AVAILABLE SLOTS VERY KEEN. A PERSONAL INTERVIEW, AN APTITUDE EXAM & EXCELLENT ACADEMIC BACKGROUND OFTEN ARE REQUIRED FOR ADMISSION TO NURSING PROGRAMS.

PRACTICAL & REGISTERED NURSES MUST BE LICENSED BY THE STATE BOARD OF NURSING (FOR MORE LICENSING DETAILS SEE PREP 8162 FOR REGISTERED & PREP 8164 FOR PRACTICAL).

COURSEWORK: VARIES, BUT MOST PROGRAMS INCLUDE ALL OR SOME OF THE FOLLOWING:

HUMAN DEVELOPMENT
PHARMACOLOGY
BASIC NUTRITION
TRENDS IN NURSING
GENERAL PSYCHOLOGY
FUNDAMENTALS OF NURSING
HUMAN ANATOMY & PHYSIOLOGY

THE LONGER ASSOCIATE, BACHELOR'S & MASTER'S DEGREE PROGRAMS CONTAIN MORE SPECIALIZED COURSES THAN THE NURSES AIDE OR CERTIFICATE PROGRAMS, AS WELL AS GENERAL EDUCATION REQUIREMENTS LIKE ENGLISH COMPOSITION, COMMUNICATIVE SKILLS, HEALTH & P.E., ETC. CONSULT THE SCHOOL CATALOGS FOR MORE COMPLETE DESCRIPTIONS OF CURRICULA.

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     RELATED PROGRAMS: 232 HEALTH EDUCATION; 363 MEDICINE;
387 HEALTH - OTHER TECHNOLOGIES; 411 HOME ECONOMICS.

DO YOU WANT A LIST OF SCHOOLS? (TYPE IN 'YES' OR 'NO').
?YES
SCHOOLS:

                 3 EASTERN OREGON AREA SCHOOLS

TEXT OMITTED AT USER REQUEST

                    8 PORTLAND AREA SCHOOLS

TEXT OMITTED AT USER REQUEST

        4 MID-WILLAMETTE VALLEY & EUGENE AREA SCHOOLS

- - - - - 21207 LINFIELD COLLEGE - MCMINNVILLE:
'LIBERAL STUDIES': 2-YEAR, PART-TIME BACHELOR'S DEGREE
  PROGRAM FOR EXPERIENCED REGISTERED NURSES.
- - - - - 22207 CHEMEKETA COMMUNITY COLLEGE - SALEM:
'NURSING':  1-YEAR CERTIFICATE PROGRAM (PRACTICAL NURSING)
  & 2-YEAR ASSOCIATE DEGREE PROGRAM (REGISTERED NURSING).
  RESTRICTED ENROLLMENT SO APPLY EARLY. APPLICATIONS ACCEP-
  TED FROM OCT 1 TO FEB 1. STUDENTS MUST PROVIDE UNIFORMS
  & SHOES.
- - - - - 22206 LINN-BENTON COMMUNITY COLLEGE - ALBANY:
'NURSES AIDE': 12-WEEK PROGRAM.  STUDENTS ASKED TO APPLY
  AT LEAST 1 MONTH BEFORE THE TERM THEY WISH TO ATTEND.
  INTERVIEW REQUIRED.  STUDENTS MUST PROVIDE UNIFORMS &
  SHOES.
'NURSING': 2-YEAR ASSOCIATE DEGREE PROGRAM (REGISTERED
  NURSING). STUDENTS MUST HAVE APPLICATION & TRANSCRIPTS
  ON FILE BY MARCH 1.  CONTACT THE SCHOOL'S ADMISSIONS
  OFFICE FOR DETAILS ABOUT REQUIREMENTS.
- - - - - 22804 LANE COMMUNITY COLLEGE - EUGENE:
'NURSING': 1-YEAR CERTIFICATE PROGRAM (PRACTICAL NURSING)
  & 2-YEAR ASSOCIATE DEGREE PROGRAM (REGISTERED NURSING).
  LIMITED OPENINGS FOR FALL QUARTER CLASS IN BOTH PROGRAMS
  (80 IN RN PROGRAM; 30 IN LPN PROGRAM).  ALL APPLICATION
  MATERIALS DUE BY MARCH 31.  SELECTION WILL BE MADE BY
  LOTTERY APRIL 30 FROM AMONG APPLICANTS MEETING ALL RE-
  QUIREMENTS OF NURSING PROGRAM.

                5 SOUTHERN OREGON AREA SCHOOLS

TEXT TERMINATED AT USER REQUEST.
YOU CAN GET INFORMATION ABOUT THESE OR OTHER SCHOOLS BY
TYPING IN 'SCH' AND SCHOOL CODES.
WHAT NEXT?
?STOP
WHEN THE PROGRAM PRINTS 'DONE', THEN TYPE:  BYE

DONE
BYE
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As with occupational information, maintenance is as important as building the file in the first place. There are a number of procedural channels that can be tapped for this information, including vocational education program proposals, education coordinating commission reports, various newsletters and Veterans Administration approval forms -- which are especially useful in identifying deletions in private vocational schools. Nonetheless, an annual review by each institution produces changes not revealed by any of these planning or operations data sources.

One of the lessons is that data problems are not confined to the labor market. Apparently categories are sufficiently ill-defined and data sources sufficiently incomplete that any attempt to build local data requires multiple sources as well as a clear conceptualization of what is to be described.

Even with these efforts, it is apparent that many compromises have been made with practicality. Important topics are missing for lack of information sources. Among these are students' length of stay to completion, completion rates and employability of graduates.

Considering the limitations, is such information useful in program planning? Clearly it is not sufficient information on which to base programs, but it does provide an overview of present training and the level of activity in the field. It is also apparent that these are substantial files of information. While compiled for career planning, they can be probed for information for other purposes.

This brings us to a brief description of a program planning assistance project that used the same information sources as a career information system but applied it to answer the program planner's questions.

A Manpower Information Clearinghouse

During 1972-74 Oregon's Career Information System operated a manpower information clearinghouse for program planners. That service demonstrated the complementarity of career and program planning. While recognizing the differences in audiences and the need for different formats of information, it showed that benefits in the form of time saving, information sharing, and broadened perspectives accrue to collaboration.

The Manpower Information Clearinghouse was essentially a data analysis and consultation service for local planners of vocational education and manpower programs. In providing this service the Clearinghouse coordinator first developed a clear understanding of the program decision to be made, then compiled available information and interpreted it for the planner or administrator. Experience with this service showed: (1) requests on a variety of topics, not just outlook, (2) a need to improvize and explain findings, not just to compile data, and (3) the relevance of career information for program planning.

The variety of topics pertinent to program planning was amply illustrated in the experience of the Clearinghouse. A review of 30 principal service reports shows the following breakdown of information inquiries:

1/2 Outlook, either current or future

1/5 Current Employment

1/5 Wages

1/6 Population and Labor Force Groups (minorities, the poor, handicapped)

1/6 Other Topics (e.g., program impact, sources of training)

These requests were made by vocational education planners, manpower program planners, professional associations, unions, and private firms.

Few of the people making requests had any more than the most casual familiarity with labor force and educational statistics; consequently, four steps proved essential to providing effective assistance to these planners.

1. Clarify the request. Requests for planning data have behind them a policy or programmatic stimulus. To provide real assistance, one must understand the decision to be made as well as receive the request for specific data. In the Clearinghouse this step often involved meeting with the client in order to understand the purpose of the inquiry, to clarify the concepts used to address such a question, and to resolve any confusion about the basic approach to be taken.
2. Research the data. The Clearinghouse coordinator had available a reasonably good collection of labor market and educational data but he was not in the position to conduct original research in response to inquiries. For both of these reasons, together with the fact that policy or program planning questions are rarely answered by a single figure, he used a variety of sources. These included the established labor market data sources, the existing files of the Career Information System, and other studies which might have addressed the same question in other areas. Even so, research often required updating or additional information about methodology.
3. Prepare a response. The response to most inquiries took the form of a technical memorandum which stated the nature of the inquiry and described the sources, limitations and legitimate uses of

the data. Conclusions pertained to the facts about the labor market; programmatic conclusions were left to the institution making the request.

4. Review the response with the client. An essential final step is to review the findings with the client, usually in person, to assure misunderstandings do not arise about the meaning of the report and to give the client an opportunity to discuss the results in the context of the decision he is to make.

Such a service is obviously more labor intensive than most efforts to provide technical assistance for program planning, so what did this effort prove? In a third-party evaluation of twelve major users of the Clearinghouse, all twelve spoke favorably of the handling of the data. They said that the reports: provided the needed data; were understandable; were used to help make decisions; were deemed unbiased and objective; and the recipients appreciated the cautionary notes. These comments are really a testimony to the service that was provided more than to the data itself. This result is important because it contrasts sharply with a number of other experiences, including Project VISION in Wisconsin in 1970 and many of the situations reported by Drewes and Katz.[5]

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[5] William R. Fischer, "Project VISION (Vocatonal Information System Involving Occupational Needs), An Experiment with Occupational Needs Projecting Techniques for Vocational Education Curriculum Planning Purposes in the Milwaukee, Wisconsin, SMSA" (Madison, Wisconsin: Wisconsin State Employment Service, June, 1970) and D.W. Drewes and Douglas S. Katz, "Manpower Data and Vocational Education: A National Study of Availability and Use" (Raleigh, North Carolina: Center for Occupational Education, North Carolina State University at Raleigh, 1975).

The career information enhances this effort in three principal ways. First, the career planning information was often sited in the reports to program planners. Secondly, the Career Information System's reference files and library were used in preparation of the program planning reports. Finally, the career planning information aided local program planners directly in a number of ways. It was used by program referral officers as justification for individual referrals of disadvantaged clients to vocational training. Several program planners used it to respond to inquiries from counselors in their own agencies. It was used in identifying shortage and surplus occupations. It provided a basis for preliminary screening of occupations which might be appropriate for training. And it is one way of helping job developers, cooperative work experience coordinators, and others to keep current on labor market developments.

In summarizing the Manpower Information Clearinghouse experience, it is apparent that program planners request a rather wide variety of information, that consultation and the use of varied sources are essential in assisting program planning, and that program planning efforts can benefit from the existence of career information.

The value of consultation and various informal sources of information is also illustrated by two recent approaches to measure the impact of federal programs. In one study by the Bureau of Labor Statistics, a national and rather quantitative approach was taken.[6] In this approach estimates of employment were made by translating expenditures generated by federal programs to employment by the use of input-output tables of the U.S. economy then to occupations through industry-occupational tables. This study produced national data of broad applicability.

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[6] Expenditures and Manpower Requirements for Selected Federal Programs (Washington, D.C.: U.S. Department of Labor, Bureau of Labor Statistics, 1975).

In another approach the National Planning Association, a much more local and individualized approach was taken.[7] In this study the National Planning Association examined the response of particular firms by tracing specific contracts and their employment effects. The two approaches produced quite different statistical results as well as finding different uses, with the NPA describing local situations much more precisely and seeing the results used by agencies and employers to meet emerging manpower needs.

Concluding Observations

Several additional generalizations about the complementarity of career and program planning emerge from this discussion.

Creative use of data, for example by supplementing primary data sources with operational data and informal sources, goes a long way whether in program or career planning. Career information itself is often useful in the early stages of program planning and research files compiled for one purpose can serve the other.

Consultation for the local planner, like counseling for the individual, clarifies the relevant issues and helps assure appropriate use of information.

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[7] Leonard A. Lecht, Marc A. Matland, and Richard J. Rosen, A System for Collecting Advance Information on the Character and Extent of Employment Generated by New Government Contracts (Washington, D.C.: National Planning Association for the U.S. Department of Labor, Manpower Administration Report, October 1972, and Phase II Report, June 1974).

Finally we could borrow some concepts as well as some information from career planning. The experience of the Manpower Information Clearinghouse clearly showed that, like career planning, program planning is most usefully understood as a process. The person engaged in career planning moves from a general survey to a specific decision in a series of events that includes a survey of available options, exploration of likely alternatives, and development of a specific one. This model has its obvious correlary in program planning where a planner cannot be simultaneously familiar with all possibilities any more than an institution can provide all types of training at all times. In program planning we must also develop a general awareness of the options that might be worth developing, explore those that seem most likely to enhance the current program, and develop in detail a select few. To the extent that we seek information appropriate to the state of development, we will find more local sources to be adequate and will focus scarce research time on a few promising areas.

DECISION-MAKING BASED ON FOLLOW-UP INFORMATION

by

Melvin E. Johnson[1]

The Minnesota Post-Secondary Vocational Follow-Up System -- What is it? It is a systematic collection of data to provide feedback for educational improvement. What does this imply?

By now nearly every school collects some data at some time in some form. And yet we find that in most instances this information is not collected systematically, does not address the same questions, and therefore, cannot be used uniformly for decision making. It is for this reason that we in Minnesota recognized the need for a systematic collection of data to provide consistent information year after year, both for program planning and development and also to provide for accountability at all levels, including classroom, school, and state department. The Minnesota Post-Secondary Follow-Up, then, is a systematic collection of data for feedback and program improvement.

Data collection systems are used daily in our lives, but we may not recognize them as such. One example of a data information system that we are all familiar with are the films of football plays that coaches use each week to examine the strengths and weaknesses of players' abilities and the plays they are to learn. Sometimes these football plays work beautifully. Sometimes these plays fall apart dismally.

To bring some order into this chaos there must be a plan, a system, an orderly process to bring about a reliable outcome. You need a plan to make things run smoothly.

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Biographical information is collected at the time the student enrolls. When the student leaves the institution, his termination data is recorded. Both sets of statistics are forwarded to one central location which processes all these facts and generates specified reports. So far the system has identified who are being served, who are graduating, who are completing training objectives (but not graduating) or changing programs, and who have dropped out.

But what about the success of the vocational programs, the effectiveness of the process of vocational education that we are examining? For feedback on this we go to graduates who have completed the programs and to the employers who have hired our graduates.

One year after the completion of a vocational program, each graduate receives a follow-up questionnaire in which he evaluates both his occupational training and his current situation. If employed, he is asked to indicate the name of his employer. A questionnaire is then directed to this employer to evaluate the qualifications and abilities of the vocational graduate, now his employee.

I should note here that only graduates are asked to evaluate programs and training. It would be unfair to measure the success of a program based on the opinions of persons who have been in the program only a brief time or who did not complete the training. Likewise, employers should not evaluate the success of a training program based on the experience of an employee who has completed only part of his training.

Again, this data is collected and processed at one central location. Let's return to the example of the football team. If the coach were to ask each individual player where he was or exactly what had happened on each play, he would get 22 different answers, and he would still have to put each of their responses into some order to achieve any perspective.

Similarly, individual teachers following up on their graduates immediately after graduation may vary greatly in their interest and ability to reach those students. In addition, a graduate just out of school does not have the perspective of one year's experience on-the-job to evaluate his training with respect to actual job conditions. Thirdly, greater objectivity is achieved when all the information is collected in the same way by the same outside agency, in this case, the Minnesota Post-Secondary Vocational Follow-Up System.

Recognizing the value of the objectivity of an "outside" reporting agency, the Vocational-Technical Division undertakes support of this project on a state-wide basis. In this way the local district benefits from an objective, systematic evaluation; but equally important, the system can be viewed with comparisons between programs and schools to determine factors of greatest efficiency and effectiveness.

There is an additional advantage to a state-wide operation. You will notice that our response rate is extremely high. This is not by accident. It is built into the system as one requirement of the contract. The follow-up must achieve at least an 80 percent response rate. We have had as high as 85 percent state-wide and, of course, as high as 100 percent in some programs.

(Traditionally it has been difficult to get some graduates to respond. Welding graduates have not responded eagerly. Some less verbal, poorer readers do not answer without additional reinforcement).

Recognizing the need for a high response rate, several steps have been taken in addition to requiring it in the contract. Teachers and students are made aware of the benefits to them of having complete data on their programs. Once they see the follow-up study as a tool to improve their vocational training, they feel a personal responsibility to contribute. Teachers and students discuss related and nonrelatedness of employment before graduation. Students are encouraged to describe fully their duties on their jobs as well as giving their job titles. This has helped in many cases of coding. For example, one graduate of a Graphic Arts program reported that he was working for State Farm Insurance. With no further information available, of course he was coded employed, non-related. Further check-up revealed that he was producing the State Farm company magazine and was therefore indeed employed-related. (We will go further into detail on related/non-related in a moment.)

Experimentation demonstrated that the response rate could be improved by adopting the following procedures:

1. A pre-letter is sent to the graduates one to two weeks before the questionnaire.
2. The follow-up questionnaire is printed on pale green paper to make it distinct from other mail.
3. A novelty was attached to the letter (a small packet of coffee has proved effective).
4. Addresses and letters are typed -- not mimeographed or xeroxed. Letters are hand-signed.

If the questionnaire is not filled out and returned on the first mailing, a second questionnaire is mailed. If this fails, a telephone contact is attempted. Lists of graduates whose mail has been returned for wrong address are circulated at the home school for updating of any known new addresses. School records-keepers, counselors, and instructors are asked for recent addresses on graduates. You can see that the high response rate is not just pure luck.

So far we have discussed the Vocational Follow-Up System:

What is it? (A systematic collection of data for feedback.)

How is it operated? Information is collected and then processed in one central location.

How is it funded? Federal funding through the Vocational-Technical Division.

What is the response rate? At least 80 percent of graduates and 90 percent of employers.

We have covered ways to help achieve this response rate. Next let us consider why we want the information, what data is essential to provide this information, and who will make use of the data.

There are two essential considerations in planning vocational education:

1. What programs should be offered?
2. What programs are effective?

The question of what programs should be offered implies two underlying considerations:

1. What programs do people want to enroll in?
2. What occupations have openings for people with appropriate training?

Once these questions are answered, the alternatives must be weighed against resources available as well as current political realities.

How then do you assess which programs people want to enroll in? In Minnesota a state-wide testing agency conducts a survey of all high school juniors. These juniors are asked what occupations they plan to pursue upon graduation and in which institutions. Many schools have found this to be at least an interesting recruiting tool, but not highly reliable as an absolute indicator of actual program choices.

One can compare actual enrollment applications to training stations available to determine which programs may need to be expanded, but this does not take into consideration new and emerging occupations, nor the required occupational demand needed to meet expanded trained manpower supply.

Certain restraints on advertising placed on public agencies limits their ability to promote awareness of training availability. Getting information to populations not in high school or in career awareness programs is difficult. Increasingly we find that we are serving people who have been out of school for some time, have either attended two to four years of college, or have already worked at an occupation and desire upgrading or retraining. It is difficult to assess this demand without public information channels and a strong ongoing relationship between the area vocational-technical institutes and the community.

Occupational demand can be just as difficult to assess, but is more apparent when graduates do not find jobs. One of the most immediate ways to assess the job market is to interview employers in the related fields. What are their projected needs for replacement and expansion? Even then there is reluctance to divulge expansion plans as a tip off to competitors.

Effective teamwork with economic development agencies can be extremely helpful both to the school and to the community. When the availability of trained manpower persuades industry to locate or expand in the community, all three benefit -- the school, the company, and the community.

Federal money through the Department of Labor has allowed Minnesota to develop a system to coordinate occupational information. The project is called Minnesota Occupational Information System and will hopefully be ready to begin operation in approximately two years.

Of course, Employment Services and the Bureau of Labor Statistics must be considered, but must be viewed in the light of local conditions. What resources are available, what political considerations pertain here?

A good example of some of the problems mentioned above is practical nursing. Is there "people demand"? Huge. Everyone has heard of nursing; many want to help others and see nursing as a career which satisfies this desire. We have approximately 50 to 150 applications for every training station we have. Are there nursing positions available? Thousands. Then do we automatically expand our nursing programs? No. The countless thousands of openings in nursing that would be filled by our trained graduates could easily promote an out-migration of Minnesota citizens. Many systems in addition to ours are training nurses on several levels. Tax dollars go to support all these programs. Minnesota taxpayers have a right to prefer that graduates trained on their dollars remain in their state. Politically and economically, therefore, it is unsound to expand this program area if it will result in out-migration of graduates, or unemployment if trained personnel exceeds state occupational demand.

Once the decision had been made on what programs should be offered according to the above considerations, there follows a need for accountability to examine what programs are effective. This is the major concern of the Minnesota Vocational Follow-Up System. If a program is not effective it may be for several reasons:

1. Perhaps there is no need for the program. Either there is no employment demand or there is no one who wants employment in that field.
2. The program may not match the occupational requirements.
3. The persons enrolled either cannot or do not want to perform the skills acquired.
4. The course content or presentation is ineffective or inadequate.

Who cares if the programs are effective, and how effective they are? Ultimately everyone may care, but some have the power of the dollar to carry this concern into appropriate action.

The student cares, because he wants to know which programs are the most effective and will result in the best employment setting for him.

The teacher cares because he has pride in his occupation or, at the very least, desires continued employment.

The counselor cares because he needs to know which opportunities will be best for his clients.

The director cares because he wants to keep his school functioning at maximum levels to meet the demand of competition for students in other vocational schools or other systems of education.

The State Department cares because it is held accountable for standards by the Legislature appropriating dollars, by the industries employing graduates, by the taxpayers supporting the educational system, and by the clients receiving training in the vocational institutes.

The question then is how do we get at the information measuring effectiveness? How much data is needed? Will everyone need the same amount of data?

As long as the picture is good, gross measurements of performance are adequate. It is good to know that a high percentage of graduates are placed immediately upon graduation. Is there any reason then to know if graduates are still employed one year later? If a graduate does not measure up to the requirements of the job, or leaves the field before a year is up, is it really justifiable to spend one to two years training someone in that area? Either the training was inadequate, the graduate was in the wrong field, or the program was not needed in the first place. But before one can determine which of the conditions may be at fault, one needs detailed data to diagnose the problem.

It is one thing to have major indicators to measure performance. It is another to have data detailed enough to suggest directions for improving the situation. How much data, then, can one collect and still find usable?

In the Minnesota Vocational Follow-Up System we have three major breakdowns of information -- biographical, termination, and graduate follow-up information. There are 16 tables relating to biographical information, 4 tables pertaining to termination, and 35 tables dealing with graduate follow-up evaluations.

How are these tables arranged? How are the reports structured so that those who need the information can find the breakdown needed for their specific purposes? First there is a state-wide summary of all programs across the state. This provides a general standard or yardstick. Next there is a summary of each program area across the state.

(Examples: all nursing programs in Minnesota; all auto mechanics programs in Minnesota.) Then there is a summary of all programs at each school. (Examples: all programs at Willmar AVTI; all programs at Pine City AVTI.) Finally, there is a report on each program by school. (Example: auto mechanics at Pine City AVTI.) With these breakdowns, the greatest number of comparisons can provide the best picture of a program's performance with relation to the state in general, that particular program area, programs in that school, and the specific data on that program.

It is logical to conclude that certain guidelines of performance would arise out of this data. It is also logical to conclude that these guidelines would be met with hostility and defensiveness if the schools themselves were not involved in setting the standards. In a series of planning sessions with local follow-up coordinators and State Department staff, guidelines were set that each school agreed should be met or should agree to implement diagnostic procedures. Some standards were set at a fixed percentage: At least 51 percent of the graduates must be in closely related or broadly related jobs during the first year as well as one year later, and at least 51 percent of the graduates should indicate that they would choose the same program again.

In order to allow for fluctuations in the employment market, other guidelines were fixed within a range of the state average for that year. For instance, the percentage of dropouts should not exceed the state average by more than 20 percent. The percentage of graduates not employed should not exceed the state average by more than 20 percent. Employers' evaluations of graduates should not fall below the state average by more than 15 percent.

The intent of these guidelines is not to suddenly fire teachers, or close any schools or programs which fall below these standards. The purpose is, however, to give the administrators, teachers, and State Department indicators which will trigger attention to potential problems. Once a problem area is noted, further tables can be consulted to discover solutions to the difficulty.

I have already mentioned that there are as many as 55 tables offering data. Fortunately there are major tables to cover broad areas. Each school has a chart indicating which tables to consult for a given concern. Let me share with you some examples of how this works.

Biographical reports have 16 tables. They cover age, sex, marital status, geographic location of enrollee's permanent address, socio-economic background, and special handicaps. They also compile the previous schooling and work experience of the enrollees.

It is essential to know some major characteristics of the clients being served. The local district may have to plan for housing, financial aids, and remedial education. Curricula must be flexible enough to serve both the students who have no background as well as those with some previous related training or work experience.

Counselors use enrollee information to attract wider audiences to vocational training. They can show that many students are as much as 25 years of age and older. Other non-recent high school graduates will be reassured they will not feel out of place.

The State Department has a responsibility to help the local districts meet the identified problems at their local schools. Special needs, curriculum development, in-service training, equipment and building modifications must be satisfied.

In every state there is some competition for students by all the systems of higher education. In Minnesota we have not only 34 area vocational-technical institutes but also a huge University with four branches, seven state colleges (now called state universities), fifteen private liberal arts colleges, and 18 community colleges. We are also the last state in the nation to offer vocational training to students under 21 tuition free. Of course these other systems resent what they consider unfair competition for the same students. Because we have enrollee information and data from state-wide testing, we can show that we are not serving the same population. Our students tend to come from nonprofessional backgrounds, with lower academic performance standings and lower economic resources. They would not, therefore, be likely to attend costly institutions demanding high academic standing.

Our state legislature has been very appreciative of the data we have been able to provide through the Minnesota Vocational Follow-Up study. Hard data is much more convincing than claims or generalities.

Termination data is equally essential to know. We must know what percent of the enrollees graduate or complete training objectives, what percent drop out, and for what reasons.

The local director needs to produce graduates to meet employment demands; he needs to keep students to maintain his appropriations based on foundation aid per student. Counselors need success indicators to assure satisfactory outcomes for enrollees. These success indicators may pertain not only to the enrollee but also to the services offered by the area vocational-technical institute.

High termination rates cannot go unheeded. State Department operations teams can assist the school in diagnosing the problems and finding solutions. The Vocational-Technical Division might have to recommend policy changes in Rules and Regulations to the State Board of Education. But without data collected systematically each year on all classes, the State Department would not be able to identify such problem areas as readily.

In reviewing the termination tables, of particular interest are the reasons why students drop out. The categories include:

1. Military
2. Transfer to another area vocational-technical institute
3. Transfer to a community college
4. Transfer to the University
5. Transfer to another institution
6. Economic
7. Personal problems
8. Unsatisfactory program performance
9. Reason unknown

Reasons 1 through 5, transfers to other institutions, average below 10 percent. Great attention must be paid however to reasons 6, 7, and 8. Economic reasons: Will the addition of financial aids personnel enable students to receive adequate assistance? Will the local school have to redirect personnel; should the State Department support funding for additional personnel or aids? Personal problems: Were enrollees inadequately counseled when they applied? Unsatisfactory program performance: Was it the problem of the student or the school? Was the student inadequate to the program, or was the institute unable to provide a meaningful curriculum? Was remedial help needed, was more flexible pacing required, was the teacher uninterested or unwilling to help the student learn? Was the program too flexible to command the student's interest?

These questions must be answered by the student, the instructor, the counselor, the director, the State Department, the State Board, and the Legislature. Services, policies, and resources must meet the needs of the citizens of the state.

These are a few of the considerations to be found in the biographical and termination reports. They provide the setting for the third report -- the graduate and employer evaluations of programs and graduates. The 35 tables contained in the graduate summary fall under these main headings:

1. First job, first job relatedness
2. Employment one year later - relatedness
3. Reasons for being unavailable for employment
4. Job location
5. Job satisfaction
6. Program ratings
7. Ratings on services of institute and community
8. Employer ratings of graduates

Table 1 deals with employment during the first year:

- Percent employed at time of follow-up
- Percent employed prior to, but not at time of follow-up
- Not employed since graduation

State guidelines require that the percent of graduates not employed shall not exceed the state average by more than 20 percent. The state average last year was 5.92 percent. Any school or program having more than 26 percent unemployed graduates would begin serious diagnostic work.

Table 2 indicates the relatedness of the first job to the training:

- Closely related
- Broadly related
- Not related

At least 51 percent of the graduates must be in jobs either closely or broadly related to training. If over half the students are working in jobs not related to training, perhaps no jobs exist and the program should be closed temporarily or permanently. A graduate has a reasonable right to expect to be able to find related employment upon completion of training. If it is not the employment market at fault, then the student may be in the wrong program or his training may not have met job requirements.

Table 6 reveals employment status one year later. Again at least 51 percent of those available for employment must be in jobs either closely or broadly related to training.

Many welding graduates are employed immediately upon graduation but are not in related fields one year later. They have either left welding or really wanted it for some other occupation.

After one year we look at the percent unavailable for employment. A program can hardly be held responsible for placing people who will not and cannot take jobs, but we must be aware of the reasons why graduates are unavailable. Legitimate reasons have included military, further training, illness, pregnancy or homemaking, and not seeking employment. Since military service has become voluntary, we have changed this category to be reported under "employed, related or non-related".

The local district and state planners are interested not only in the geographic region enrollees come from, but also where their jobs take them upon graduation. It must be noted whether the program serves primarily the local district, the state at large, the metropolitan area, or out-of-state employment. Resources must be directed toward the greatest return, and where duplication will be avoided.

Salary ranges of graduates are reported both on the first job and also one year later.

The follow-up measures how satisfied graduates are with their jobs in related fields, and also graduates employed in non-related fields. Job satisfaction is a rather general term. Without finer breakdowns the term "satisfaction" can be rather useless. Table 18 measures these elements: salary, fringe benefits, advancement, supervision, co-workers, company policies, pace of work, facilities and equipment, work conditions, variety of work tasks, job security, and safety conditions.

One example of a tangible outcome of these tables occurred just last year. One major international firm located in the metropolitan area complained that they could not keep workers. Graduates had mentioned that work conditions, safety, and facilities were extremely unsatisfactory. Key officials were invited to visit the school. When they saw the contrast in lighting and neatness in the school shop, they ordered their foreman to do a total overhaul. They are one of the strongest supporters the school has today.

Graduates evaluate the equipment and facilities at the school as well. Instruction is evaluated for up-to-datedness, teaching quality, teacher knowledge, and instructor interest in the students' progress. Remember, at least 51 percent of the graduates must express satisfaction with their program choice to meet the accepted guidelines.

In our area vocational-technical institutes placement is viewed as the responsibility of the school, primarily the instructor. In Table 28 graduates list who was most helpful in helping them secure their first job. Our highest percentages range from instructor, to self, to relatives. We find that reasonable and good. Only 2 percent resorted to a private employment agency and the State Employment office served 4.79 percent.

Lastly, graduates judge the quality of the services provided by the area vocational-technical institute and the community in areas of housing, financial aids, youth organizations, and recreation facilities. One rural school director shared with the local Kiwanis Club the graduates' evaluation of the recreational facilities offered in that community. There were none. After that meeting the local community and the school and the students organized to build a student union which makes this school more attractive to students this day.

Once we have the evaluations of our graduates on our schools and their training, it is just as important to get the evaluation of the employers on our graduates' performances.

They are asked to judge the quality and quantity of their work, their knowledge and ability to operate equipment on the job and overall verbal and comprehension skills. Finer break-downs measure willingness to accept responsibility, punctuality, work without supervision, cooperation with management and co-workers, compliance with rules, and work attendance. These are all factors extremely important for success on the job. It is critical for instructors to be able to point to these evaluations to help students in their classes.

You have just heard about all the reports and tables covered in the Minnesota Vocational Follow-Up System. You have heard some of the uses.

Is this data useful only to the State Department -- or can each individual area vocational-technical institute profit from using this report?

One major use, of course, is for in-house planning and evaluation. How do our programs compare with the state average? How do graduates rate our facilities, instruction, curriculum, community and school services? In which areas can we improve? How do employers see our graduates?

These questions must be asked by the local director, superintendent, local board, counselors, instructors, and advisory committee members.

The State Department is a partner in these concerns. Enrollments can be improved by sharing certain tables with the above groups and community service groups (Kiwanis, churches, etc.), employers, Employment Services, and referral agencies.

Publics outside of the school who can provide support and direction are professional trade and labor organizations, state agencies (Economic Development, Department of Labor, Veterans, etc.), service organizations (Chamber of Commerce, Industrial Development, Citizens League, League of Women Voters), the media (television, radio, newspapers), and finally the Legislature. Individual legislators are interested in their local districts. Education committeed need performance outcome data to make wise decisions on appropriations. And don't forget -- administrative aids to senate and house members are eager for information to help them in their deliberations.

The tables we have presented will support requests for funding. They will help persuade industry and foundations to donate or furnish equipment, supplies, and financial support. The information gathered will meet questions of the State Board, State Department, Higher

Education Coordinating Commission, Curriculum Advisory Committee, the Legislature, industry, community organizations, and labor.

In conclusion, let me stress that the Minnesota Vocational Follow-Up System provides a systematic collection of data for feedback. Information can be used for planning, development, and improvement; for recruiting; for support and direction; and for documenting funding requests. Data is needed at all levels -- local, state, and outside groups. The key concern for all is Accountability.

INTEGRATING INFORMATION AND ASSESSING ALTERNATIVES

by
Charles Hopkins[1]

It is not difficult for someone involved in planning to get so much information that they do not know how to use it to reach decisions. Many states presently have a fairly good information system developed. They can tell you how many students that they have enrolled, their grade level, race, sex, and age. Also, they know a lot about what is happening to their graduates. On the other side of the picture, most of our states have some pretty reliable data indicating the need for trained manpower. These items are what a person charged with planning has available to them to assist with decision making. However, at this point our problems have just begun. In planning, we have concerned ourselves with primarily the two kinds of data just mentioned. Information related to students and manpower is important but these data are only two inputs into the total picture. Granted that they are the primary areas of data needs, but there are many subdata needs that go along with them.

This situation usually sets us out on a path of gathering aggregate data, without paying any attention to the kinds of decisions that will be made from the data. Close examination will reveal that both the population and manpower needs areas should be examined at greater depth.

What we really need to know depends upon the decisions that are to be made. Models are often developed that are supposed to give the decision-maker the exact kind of information needed; perhaps this works in some instances but overall it is not effective for total decision making. Decisions are unique to the individual situation. There are a couple more ingredients to be considered. Is this decision going to be viewed rationally? Can you get the decision-maker to exactly identify what the expected outcome is to be?

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This brings us to alternatives. When planning it is important to consider alternatives. If someone is expected to make decisions based on the alternatives presented, they should have an input into the decision points.

It is my opinion that the decision-maker should be involved in identifying the decision areas before the person charged with planning begins to collect and assemble the data necessary for a decision. This is not an easy task, but is important. In the event that one cannot get the decision-maker to identify the decision points or expected outcome, then they must proceed with the planning process and present the decision-maker with several alternatives explaining what is involved in the processes.

It is important to understand the relationship of data needs to decision alternatives. Data needs work in a hierarchical manner -- at the top of the hierarchy or the first level is the decision area. Under the decision area at the second level are blocks that will be filled in with the data needed about the decision area. Once the data area has been identified, the next step would be to identify the specific data and then the data subparts. Therefore, we have a hierarchical approach that continues until all the identified needed data are gathered.

Let's look at an example of what I have just discussed. If we were to choose program expansion as the decision area the process may be as follows: First, it is necessary to identify the decision point or expected outcome. I have chosen as the decision point that of maximizing entry-level wages as my first alternative. Second, now that a decision point has been identified, the next step is to identify the kind of data that will be necessary. Upon examination we determine that we need manpower information and student information. These then have to be broken down. Taking manpower first and listing what we need to know, we find these things to be important: (1) Demand data and (2) supply data. Now let's look at the sub-data needs: (1) Wages, (2) costs, (3) placement, (4) enrollment, (5) length of training program, (6) retention, (7) completers, (8) source of supply, (9) level of training associated to the demand, (10) demand clusters, and (11) training program clusters. As you can see it is not difficult to identify many data needs. Looking at the student or trainee side of the information we find that these things may be important: (1) Number of students at each grade level, (2) ages, (3) interests, (4) aptitudes and abilities, and (5) availability. This is not a difficult process, but our work has just begun when we have the data needs identified. The basic problem is that we have so much data that it is almost impossible for all the alternatives to be identified and examined. The derivation process now begins. Computations must be made in detail in order to get all the data in usable form to maximize entry-level wages. We are not through yet. We need to complicate the process a little further. It just happens that we do not have all the resources that we need to establish enough programs to fill all the demand, or to serve all the population desiring our services. What are these resources? They are capital, students, and teachers. As we progress into the decision-making process there are more and more decision areas to be examined. Each of these normally call for additional data or treatment of data. For instance how much money should a state agency allocate between secondary, post-secondary, and adult training programs? Constraints or restrictions must be imposed on decision making. If we did not have constraints or limited resources, decision making related to program expansion would be easy. But, when we have these we must attempt to allocate the resources that will give the greatest return to our investment. This is where we need tools to assist us with the decision-making process.

One tool or technique that has been used is linear programming. This is not a new discovery, but one that is rather new to education. Linear Programming is simply a process that allows the decision-maker to analyze or simulate large volumes of data while imposing several constraints in the analysis. What it does is to make the user identify the objectives to be maximized or minimized. It really forces him to be specific as to what he wants to measure. This is called rational decision making. This is a little new to educational decision-makers but will be necessary in the future to account for the resources allocated.

It is possible to assess many alternatives. We have programmed five alternatives using linear programming. They are as follows:

1. Maximize Entry-Level Wages. Provides for selection of those programs which will yield the maximum wages for students enrolled in a program. The model selected, based upon constraints such as supply, demand, and capital, those programs which provided the highest wage for a student at the completion of a program.
2. Maximize Job Placement. Selects those programs which will provide for the maximum number of students placed on jobs,

based upon resources available for training. This objective function is also important in accounting for those who are placed on jobs. Job placement has become a priority in most states and, therefore, is important in the decision-making process concerning program offerings.

3. Maximize Students Served. Indicates which programs should be considered to serve the most students with the resources available. This objective function, as well as all others, would also consider factors such as capital, demand, and supply.

4. Minimize Program Costs. Provides for developing a program mix which incurs a given minimum cost. This objective function was included since tax monies available for training students are limited.

5. Maximize Social Benefits. Indicates that amount of money returned to the economy by students trained in vocational or technical programs. The benefits are shown in the form of taxes and in the dollars saved by the Department of Welfare through vocational-technical programs. This objective function will also be helpful for decision-makers to show legislators how education is assisting in returning tax monies to the state and saving tax dollars by reducing welfare costs.

Using the five objective functions required gathering a large amount of data. The data used consisted of the following: (1) Budget development for all program alternatives, (2) student supply available at the secondary, post-secondary, and adult levels, (3) stratifying the supply according to their aptitude and ability, (4) entry-level wages for each occupation according to the Dictionary of Occupational Titles, (5) recommended program training capacity, (6) number of students available for placement at all levels, (7) demand data by D.O.T.'s, (8) taxes paid by the average wage earner trained, (9) welfare reduction as a result of employing a trained person versus one that is receiving welfare payments, (10) capital available for training from local, state, and federal sources, and (11) teachers available from teacher training institutions. This may not appear to be a large amount of data but when you start to develop the subpart data it becomes a very difficult task.

Interpretations and assessment often depends on the individual outlook. If the decision-maker is presented with good facts, then these facts cannot be misconstrued. Use only the essential data to get the desired decision. Do not make the mistake of compiling great amounts of information, dumping it on the decision-maker's desk and then saying, "Here it is." Make a tentative analysis of the data, the alternatives available, the weakness of the data, and the documented source.

When alternatives are presented to the decision-maker care should be exercised by pointing out the impact that the decision may have on the organization. Very few instances exist where the decision does not affect the people or current operations. This is the risk involved but a good analysis of alternatives will reduce risks and help point out the rough spots.

APPENDIX VII

SELECTED SIMULATION EXERCISE AND BACKGROUND INFORMATION

Not for Duplication or Quotation
Without Permission

A SERIES OF SIMULATION EXERCISES DIRECTED AT CRITICAL ISSUES IN PLANNING VOCATIONAL EDUCATION

BACKGROUND INFORMATION

Vocational Education Planning Project
George H. Copa, Director
Erwin K. Geigle, Research Fellow
Donald E. Irvin, Jr., Research Fellow

Minnesota Research Coordinating Unit for Vocational Education
Department of Vocational and Technical Education
University of Minnesota
Minneapolis, Minnesota
1974

INTRODUCTION

The purposes of these exercises are to: (a) identify the variables which must be considered in planning vocational education programs, (b) describe the steps in the planning process, (d) identify the kinds of information needed for planning, and (d) identify the priorities given to each of the relevant variables. The issues treated in the exercise evolve during the normal course of operating vocational education programs. The exercises were developed from actual cases in the file of vocational education administrators - only the names have been changed to protect the guilty.

SETTING

The vocational programs involved in these exercises are located in the State of Adams. Adams is a midwestern state which is retangular in shape. It is approximately 300 miles east to west and 200 miles north to south. A map of Adams is shown as Figure 1. The capitol, Spur, is located near the center and is the headquarters for all state government offices.

The vocational programs of interest are situated at Boot County which is located in the northwestern part of Adams. A post-secondary area vocational-technical institute (AVTI) serving primarily the residents of Boot County is located at the county seat at Girth. The AVTI of Boot County is however also available to all other residents of the state of Adams. A map showing the highways and communities in Boot County is shown as Figure 2.

Three school districts in Boot County are most specifically involved in these exercises. They are Poll, Flank, and Crop School Districts. These three school districts have joined together for the purpose of providing additional secondary vocational education through the Shank Vocational Center located at Flank. A map describing the geography of these school districts is also shown in Figure 2.

CHARACTERS

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J. Mirth	Director, Shank Secondary Vocational Center
L. Saxor	Superintendent, Poll School District
K. Klone	Vocational Teacher, Shank Secondary Vocational Center
D. Jinks	Director Vocational Education, Crop School District
C. Mayes	Representative in State Legislature from Boot County
B. Bryce	Consultant, Adams State University
A. Titus	Member of Boot County Industrial Council

FORMAT

The issues treated in these exercises will be handled via communications to you as one of the above characters. Through the communications, you will be informed of the issue at hand and how it arose. You will be asked to respond to the issue with a brief written statement. A form entitled "My Position" has been prepared for recording your statement. An "Information

Bank" which contains base data for the state, county, and school district is available for your use. Simply complete an "Information Request" form and the available information will be supplied to you for use in stating your position with respect to a given issue.

Following the completion of your position statement, a committee meeting of all persons involved will be held to resolve the issue for the state and schools involved. Be prepared to explain and justify your position as well as compromise. Except for issue one, all issues will revolve around the adding and/or deleting of vocational education courses to and from the existing programs of vocational education at the Girth post-secondary Area Vocational-Technical Institute, the Shank Secondary Vocational Center and the Poll and Crop high school Vocational Education Departments. To summarize, you will be asked to make decisions concerning vocational education courses at Girth Area Vocational-Technical Institute, Shank Secondary Vocational Center at Flank, and Poll and Drop high school Vocational Education Departments.

TABLE 1

POPULATION OF SELECTED GEOGRAPHIC AREAS

AREA	POPULATION
State of Adams	3,804,971
Metropolitan Area	1,874,380
Non-Metropolitan Area	1,930,591
Economic Region 7	299,000
Boot County	57,718
Girth	23,641
Flank	6,377
Crop	1,596
Poll	640

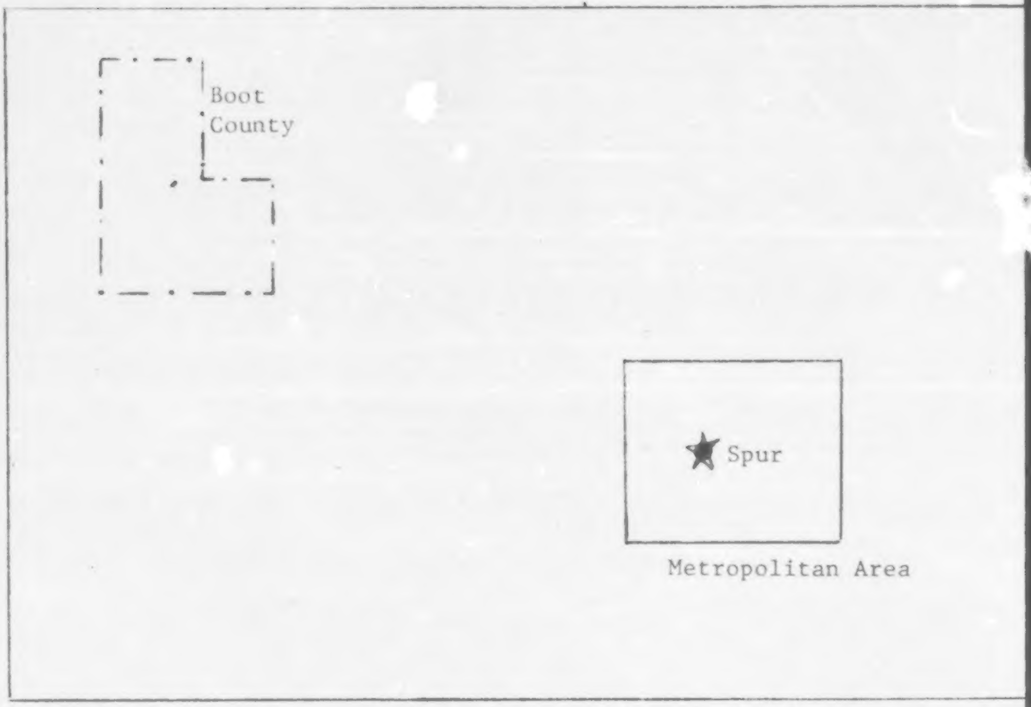
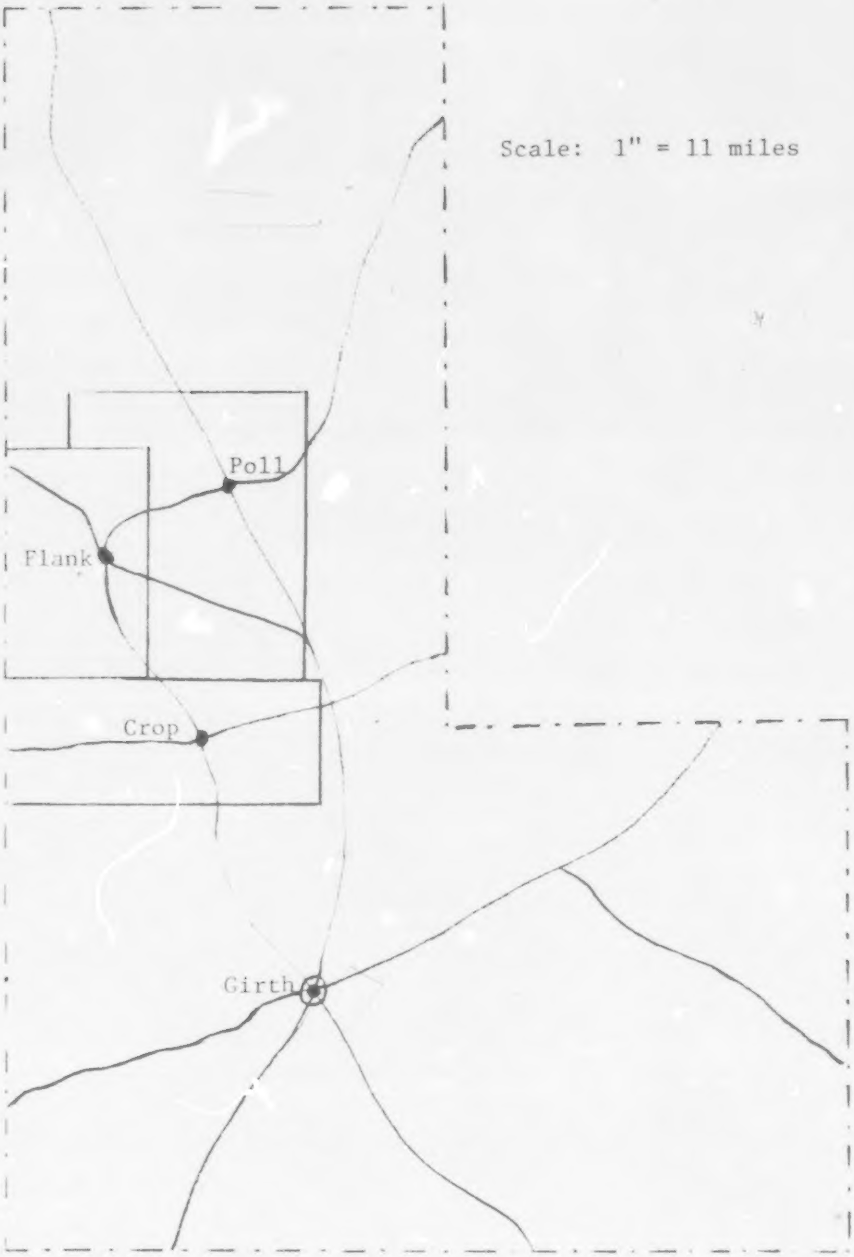

Boot
County
Spur
Metropolitan Area

Figure 1. State of Adams



Scale: 1" = 11 miles
Poll
Flank
Crop
Girth

Figure 2. Boot County: Crop, Flank, and Poll School Districts with county seat at Girth.

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A SERIES OF SIMULATION EXERCISES DIRECTED AT CRITICAL ISSUES IN PLANNING VOCATIONAL EDUCATION

LABOR MARKET NEEDS, PEOPLE NEEDS AND VOCATIONAL EDUCATION

Vocational Education Planning Project
George H. Copa, Director
Erwin K. Geigle, Research Fellow
Donald E. Irvin, Jr., Research Fellow

Minnesota Research Coordinating Unit for Vocational Education
Department of Vocational and Technical Education
University of Minnesota
Minneapolis, Minnesota
1974

J. Rowe
Director, Planning and Development Section
Division of Vocational-Technical Education
State Department of Education
140 North Drive
Spur, Adams 74252

Dear J. Rowe:

In the process of planning our curriculum for next year we are encountering a perennial problem: What to do about programs that have high enrollment but low occupational placement. In the past there has been considerable disagreement among the members of our planning committee about the proper course of action in this situation. Some have advocated phasing out these programs while others have urged their continued operation.

The problem facing us this year appears to be particularly sensitive in the following "traditional" program areas:

1. automobile mechanics
2. welding
3. cosmetology

Our next planning committee meeting will be held on ____________ at which time this problem will be the major topic of discussion. I would like you to attend and present your position on criteria for keeping or dropping a program (i.e. placement rate, student demand). If you cannot attend, please send me this information.

Sincerely,

R. Land
Director, GAVTI

188

MEMO

TO: GAVTI Planning Committee

FROM: R. Land, Director, GAVTI

Just a reminder that the next planning committee meeting will be held on _____________ in the main conference room at GAVTI.

The primary topic for this meeting will be developing a strategy for dealing with programs for which there is a high student demand but a low rate of occupational placement. It appears that our auto mechanics, welding, and cosmetology programs presently fall into this category.

I have asked J. Rowe to attend this meeting so that we may get the State Department's view on this problem (see attached letter). As I asked J. Rowe, I would like you to each describe your position on what action should be taken with respect to these programs (i.e. keep or phase out) preliminary to our meeting. In your position statement, try to identify the factors you considered and how you weighed them in forming your position.

Name: ____________________

(Simulation Exercise 5)

MEETING MANPOWER VS PEOPLE NEEDS

PROGRAMS	Decision			Justification (Justify your decision in terms of factors considered and their importance)
	Delete	Retain	Other Action (Describe)	
Automobile Mechanics				
Welding				
Cosmetology				

APPENDIX VIII

COMMUNICATIONS WORKSHOP PROBLEMS

ED 138 713 NATIONAL CONFERENCE FOR STATE VOCATIONAL EDUCATION PLANNING STAFFS.
FINAL REPORT. COPA, GEORGE H.; GEIGLE, ERWIN K. MINNESOTA RESEARCH
3 OF 3 COORDINATING UNIT FOR VOCATIONAL EDUC., MINNEAPOLIS.; MINN. UNIV.,
MINNEAPOLIS. DEPT. OF VOCATIONAL & TECHNICAL EDUC. NOV 76 208P.

PROBLEM: There are strong indications that the upcoming session of the State Legislature will face severe fiscal problems. Taxpayers' groups around the state are calling for a "hold-the-line" tax program. Political pressures on both political parties are such that legislative leaders are hesitant in committing themselves in favor of any new or expanded educational programs. The prospect of strong competition for tax dollars among all areas of post-secondary education is evident. A study of the state's newspapers, metropolitan and rural, shows general editorial support for a so-called "economy in government" posture. Studies indicate that enrollments in your school(s) show projected increase(s) for the next ten years. You will need additional state funding to meet basic staffing needs during the next ten years.

ASSIGNMENT: Develop a communications program (promotion) to convince the State Legislature and other concerned publics that vocational/technical educational support is essential.

PROBLEM: High school guidance counselors in your state appear to be strong advocates of college or liberal arts education for high school graduates. Sample interviews you have conducted with vocational students in your school(s) indicate that these students have received very little information or help from their high school counselors after the students indicated they had selected vocational studies for their post-secondary education. The State Association of Secondary School Counselors has no representation from the vocational-technical educational sector. Your studies also indicate that less than 20% of the high school graduates in your state go on to college (liberal arts or professional courses).

ASSIGNMENT: Develop a communications program (promotion) designed to help change attitudes of the counselor public.

PROBLEM: Several large industrial firms in your state have complained publicly that course offerings of your school(s) are not totally relevant to the employment needs of industry. These influential men are making plans to introduce a resolution at the next annual meeting of the State Chamber of Commerce, a resolution asking for an investigation of curricula of the school(s) by the State Education Commission. You have representation on the State Education Commission. Your business advisory committee(s) represent, generally, business and industries with payrolls of less than 50 persons. You have an excellent placement of 90% of your graduates over the last five years.

ASSIGNMENT: Develop a communications program (promotion) to forestall action by the State Chamber of Commerce. Define the publics to be "used" in this effort.

APPENDIX IX

CONFERENCE EVALUATION FORM

NATIONAL CONFERENCE: STATE PLANNING FOR VOCATIONAL EDUCATION

December 3-5, 1975
Anaheim Convention Center
Anaheim, California

CONFERENCE EVALUATION

1. Were the objectives of the conference stated at the outset? ☐ Yes ☐ No

2. How clear was the relationship made between major topics and the conference theme "State Planning for Vocational Education"?

	Very Clear	Clear	Not Clear
A. Factors to consider in Adding, Retaining or Deleting Vocational Education Programs	☐	☐	☐
B. Identifying and Translating Manpower Information for Planning Vocational Education	☐	☐	☐
C. Assessing the Cost-Effectiveness of Alternative Means of Delivering Vocational Education	☐	☐	☐
D. Using a Management Information System in Planning Vocational Education	☐	☐	☐
E. Communications Needed to Make A "Working" Plan for Vocational Education	☐	☐	☐
F. Staffing a State Department for Planning Vocational Education	☐	☐	☐

3. How satisfied were you with the quality of the following selected aspects of the conference speakers?

	Very Satisfied	Partially Satisfied	Dissatisfied
A. Ideas or issues presented	☐	☐	☐
B. Opportunity for questions	☐	☐	☐
C. Relevance of content	☐	☐	☐
D. Effectiveness of delivery	☐	☐	☐

4. How satisfied were you with the quality of the following selected aspects of the simulation exercises?

	Very Satisfied	Partially Satisfied	Dissatisfied
A. Ideas on issues presented	☐	☐	☐
B. Opportunity for discussion	☐	☐	☐
C. Relevance of content	☐	☐	☐
D. Effectiveness of delivery	☐	☐	☐

5. How satisfied were you with the quality of the following aspects of the total conference?

	Very Satisfied	Partially Satisfied	Dissatisfied
A. Opportunity to socialize	☐	☐	☐
B. Amount of materials received	☐	☐	☐
C. Usefulness of materials received	☐	☐	☐
D. Opportunity for professional development	☐	☐	☐
E. Organization and operation of the conference	☐	☐	☐
F. Opportunity to discuss issues	☐	☐	☐
G. Conference location and facilities	☐	☐	☐
H. Overall conference satisfaction	☐	☐	☐

6. In terms of the content presented and discussed at the conference, list two important findings or ideas that you can relate to your present activities in educational program planning:

A. ______________________________

____

B. ______________________________

____

PLANNING FUTURE CONFERENCES

1. Rate each of the activities listed in terms of whether "more" or "less" emphasis should be provided at future conferences.

	More	No Change	Less
A. Time to talk with speakers	☐	☐	☐
B. Informal and/or small group discussions	☐	☐	☐
C. Formal presentations	☐	☐	☐
D. Simulation activities	☐	☐	☐
E. "Workshop" type activites	☐	☐	☐
F. Free time to talk with other participants	☐	☐	☐
G. Handout materials	☐	☐	☐
H. Films or other audio-visual presentations	☐	☐	☐

2. Rate each of the areas listed in terms of priority for future conferences on State Planning for Vocatinal Education.

	High	Medium	Low
A. Political Dimension of Planning	☐	☐	☐
B. Economic Dimension of Planning	☐	☐	☐
C. Cultural Dimension of Planning	☐	☐	☐
D. Organizational Dimension of Planning	☐	☐	☐
E. Personal Dimension of Planning	☐	☐	☐
F. Inquiry and Communication Dimension of Planning	☐	☐	☐

3. List two types of individuals who you think could benefit from future conferences on State Planning for Vocational Education (e.g., state program planners, executive directors of state advisory councils, post-secondary vocational and technical institute directors, state directors, building principals, etc.)

A. ____________________

B. ____________________

4. How many days should be devoted to a national conference?

☐ 1 - 2
☐ 3 - 4
☐ 5 - 6
☐ 7 - 8
☐ 9 - 10
☐ More than ten

5. What factors would impede you from attending future conferences on planning vocational education? (Rank in order with the most constraining factor receiving a rank of 1.)

	Rank
A. Travel expenses	☐
B. Per diem expenses	☐
C. Leave time	☐
D. Registration fees	☐
E. Other (Please list)	☐

____

APPENDIX X

PLANNING FUTURE CONFERENCES

The national conference participants were asked to respond to five questions for suggestions on future conferences. The responses of the participants to the five questions are portrayed in Tables A, B, C, D, and E in this appendix.

TABLE A: Question 1

PLANNING FUTURE CONFERENCES: For Future Conferences, Should More or Less Emphasis Be Placed Upon Selected Aspects of CONFERENCE ACTIVITIES?[a]

Conference Activities	Response Categories More Emphasis	 No Change	 Less Emphasis	 Total[b]
	%	%	%	%
A. Time to talk with speakers	46	54	0	100
B. Informal and/or small group discussions	54	46	0	100
C. Formal presentations	8	63	29	100
D. Simulation activities	33	58	8	99
E. "Workshop" type activities	46	54	0	100
F. Free time to talk with other participants	38	63	0	101
G. Handout materials	25	71	4	100
H. Films or other audio-visual presentations	29	67	4	100

[a] According to responses of 24 conference participants.
[b] Because of rounding errors, each total may not equal 100%.

TABLE B: Question 2

PLANNING FUTURE CONFERENCES: For Future Conferences, What Priority Should the Listed PLANNING DIMENSIONS Receive?[a]

Planning Dimensions	Response Categories High	 Medium	 Low	 Total[b]
	%	%	%	%
A. Political Dimension of Planning	38	50	12	100
B. Economic Dimension of Planning	75	25	0	100
C. Cultural Dimension of Planning	38	54	8	100
D. Organizational Dimension of Planning	67	25	8	100
E. Personal Dimension of Planning	21	63	17	101
F. Inquiry and Communication Dimension of Planning	67	29	4	100

[a] According to responses of 24 conference participants.
[b] Because of rounding errors, each total may not equal 100%.

TABLE C: Question 3

PLANNING FUTURE CONFERENCES: Who Do You Think Could Benefit From Future Conferences on State Planning for Vocational Education?[a]

Individuals	Frequency
State Program Planners	12
State Directors of Vocational Education	7
Local Planning Staff	4
Local Vocational Education Directors	4
Asst. State Program Planners	3
Directors of Technical Colleges or Institutes	3
RCU Personnel	3
Fiscal Officers	2
Regional (USOE) Reviewers of State Plans	1
Non-Vocational State Department Planning Staff	1
Coordinator of Planning & Evaluation	1
Management Information Specialist	1
Writers of State Plan	1
University Vocational Education Director	1
Local Planning Staff	1
Building Principals	1
School Superintendents	1
Local School Board Members	1
State Supervisors of Program Areas	1
Secondary Planners	1
State Superintendents	1

[a] According to responses of 24 conference participants who listed one to three individuals each.

TABLE D: Question 4

PLANNING FUTURE CONFERENCES: How Many Days Should be Devoted to a National Conference?[a]

Number of Days	Frequency
1 - 2	1
3 - 4	17
5 - 6	3
7 - 8	0
9 - 10	0
More than 10	0

[a] According to responses of 24 conference participants.

TABLE D: Question 5

PLANNING FUTURE CONFERENCES: What Factors Would Impede You From Attending Future Conferences on Planning Vocational Education?[a]

Factors	Priority Rank[b]				
	1	2	3	4	5
Travel Expenses	12	5	3	0	0
Per Diem Expenses	2	7	5	1	0
Leave Time	6	2	4	3	1
Registration Fees	1	1	3	8	1
OTHER					
Program Content	2	0	0	0	0
"None"	1	0	0	1	0

[a] According to responses of 24 conferences participants.

[b] Rank order priority with the most contraining rank receiving a rank of 1.

CURRENTLY AVAILABLE PUBLICATIONS

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---

*Bailey, Willard F. Jr. and Jerome Moss, Jr., A Comparison of Mail-Techniques for Stimulating Interest in Occupational Education Research. 1966. ED 011 289

*Moss, Jerome Jr., Measuring Creative Abilities in Junior High School Industrial Arts, Monograph 2. 1966.

Moss, Jerome Jr., The Influence of Industrial Arts Experience on Grades Earned in Post-High School Trade and Technical Curriculums. 1966. ED 012 324

Pucel, David J., Brandon B. Smith, Marshall S. Hahn, and Willard F. Bailey, Jr., Estimating the Human Resources for Research in Occupational Education in Minnesota. 1966. ED 011 290

*Jiloca, Editha L., Bibliography of Studies in Occupational Education Conducted in Minnesota: 1965-67. 1967.

Moss, Jerome Jr., Report of a Five-State Occupational Education Research and Development Planning Conference. January, 1967. ED 012 317

Technical Report No. 1: Sources of Information for Preparation of Research Proposals. January, 1967.

Technical Report No. 2: Selecting and Developing a Research Problem. September, 1967.

Moss, Jerome Jr., Review of Research in Vocational Technical Teacher Education. September, 1967. ED 016 803

*Pucel, David J., Variables Related to MDTA Trainee Employment Success in Minnesota. February, 1968. ED 027 449

Vocational-Technical Education: A Study of the Effect of the Area Vocational-Technical Schools in the State of Minnesota. Minnesota Research Coordinating Unit, July, 1968.

Moss, Jerome Jr., Technical Report No. 3: The Evaluation of Occupational Education Programs. September, 1968.

Hahn, Marshall, Review of Research on Creativity. September, 1968. ED 029 090

*Randleman, Robert R. and David N. Wheeler, Report of an Evaluation of a Summer Institute for Training Researchers in Occupational Education. September, 1968.

*Pratzner, Frank C. and Lyle Faurot, Summary of Studies Conducted in Minnesota: 1965-67. September, 1968. ED 023 895

McMillion, Martin B., Correlates of Leadership Decision Patterns of High School Pupils. 1968. ED 025 646

Klaurens, M. (Editor), Developing Innovative Vocational Technical Teacher Education Programs. 1968. ED 209 094

Moss, Jerome Jr., David J. Pucel, and Frank C. Pratzner (Editors), Report of A Developmental Project Guidelines Conference. 1968. ED 025 647

Pratzner, Frank C. and Marjory Hanson, The Relative Effectiveness of Two Ways of Structuring and Presenting Pre-Service and Initial In-Service Vocational-Industrial Teacher Education Lessons. April, 1969. ED 029 995

*Stock, William E. and Frank C. Pratzner, Review of Research on Student Selection and the Prediction of Success in Occupational Education. August, 1969. ED 039 319

*Price, R. G., (Editor), Assessment of Educational Programs: Proceedings of the Eleventh Annual Research Conference for Graduate Advisors in Business Education. 1970.

Collofello, P., Helen Henrie, and Emma Whiteford, The Relative Effectiveness of Two Sources of Feedback on Teachers in the Micro-Teaching Situation. 1970. ED 044 490

Smith, Brandon B. and Jerome Moss, Jr., Process and Techniques of Vocational Curriculum Development. April, 1970. ED 042 917

Persons, Edgar and George Copa, Report of the Central Regional Research Conference on Agricultural Education. October, 1970. ED 056 249

*Minnesota Research Coordinating Unit, Abstracts and/or Titles of Research and Development Projects Dealing with "Orientation to Work and Career Development. 1970.

*Copa, George H., Technical Report No. 4: Identifying Inpust Toward Production Function Application in Education. April, 1971. ED 053 317

*Smith, Brandon B. and Editha L. Jiloca, The Relationship of Selected Factors to the Occupational-Educational Choices of Twelfth Grade Students. April, 1971. ED 052 370

Wheeler, David N., Technical Report No. 5: The Measurement of Job Relatedness for Vocational Program Evaluation. May, 1971. ED 053 318

*Kreutzkampf, June and Charles Kiefer, Status of Vocational Education Research and Development Activities in Minnesota, 1968-1970, An Annotated Bibliography. June, 1971. VT 014 068

*Wheeler, David N., Technical Report No. 6: Reviewing the Literature: A Handbook for the Vocational Researcher. June, 1971. VT 014 086

Copa, George and Edgar Persons, ComputeRation Beef: A Management Decision Aid. 1971.

*Henrie, Helen H. and Emma B. Whiteford, The Teleconference: A Supervisory Procedure in Educational Clinical Experiences. February, 1972.

*Smith, Brandon B. and Jerome Moss, Jr., Developing a State System of Managed Research and Development Activities in Vocational Education. February, 1972.

*Re-Source: Foods Service Curriculms. Minnesota Research Coordinating Unit, 1972.

*Re-Source: Occupational Home Economics Curriculums. Minnesota Research Coordinating Unit, 1972.

*Re-Source: Occupational Home Economics Program Development. Minnesota Research Coordinating Unit, 1972.

Copa, George H. and Donald E. Irvin, Jr., Occupational Demand in Minnesota for 1973. July, 1972.

*Kiefer, Charles C., The Perceptions of Selected Male Public High School Seniors Concerning Specialized and Comprehensive Post-Secondary Schools in Minnesota. August, 1972.

Copa, George H., Edgar Persons, and Paul Thomas, Individual Demand for Vocational Education. February, 1973.

*Persons, Edgar A. and Gary Leske, Staffing Patterns for Programs in Adult Agricultural Education. July, 1973.

Copa, George and Donald Irvin, Status of Former High School Students: Procedure for Local Assessment. August, 1973.

Smith, Brandon B., A System for Evaluating Career Education in Minnesota: 1972-1973. February, 1974.

*Copa, George H. and Donald E. Irvin, Jr., Average Annual Occupational Demand in Minnesota for the Period 1971-1980. June, 1974.

*Copa, George H. and Robert W. Korpi. The Need and Sources of Teachers in Vocationally Reimbursed Positions in Minnesota. July, 1974.

*Burger, Laura J. and Judith J. Lambrecht. Handbook for Vocational Instructors Interested in Competency Based Education, 1974.

Irvin, Donald and George Copa, Status of Former High School Students: Procedure for Local Assessment, Report of The Final Test, November, 1974.

Burger, Laura, Deena Allen, and James Loebs, Competency-Based Route to Vertical Curriculum Articulation, 1975.

*Burger, Laura, Guide for Articulating Vocational-Technical Curriculum in Minnesota, 1975.

Burger, Laura, Developing Articulated High School and Post High School Vocational-Technical Curricula in Minnesota, A Final Report, June, 1975.

*Copa, George H., and Donald E. Irvin, Jr. and Clyde Maurice. Status of Former High School Students: Procedure for Local Assessment, Summary Report for a Statewide Sample Class of 1974. February, 1976.

*Copa, George H., Erwin K. Geigle, and U.O. Imade. Factors, Priorities, and Information Needs in Planning Vocational Education: Views of Selected Educational Planners in Minnesota. March, 1976.

Copa, George H, and Erwin K. Geigle, and Donald E. Irvin, Jr., Critical Issues in Planning Vocational Education: A Series of Simulation Exercises, April, 1976.

Copa, George H., and Clyde F. Maurice. Perceived Needs for Education Beyond High School, November, 1976.

---

*Single copies of these publications are available, free of charge, from the Minnesota Research Coordinating Unit for Vocational Education. The other publications listed are available in either hardcopy or microfiche form from Central ERIC.

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